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CONSUMERS' RESEARCH Bulletin

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THIS NUMBER is one of 9 BULLETINS issued during the year by Consumers' Research which are not confidential. This BULLETIN may be freely discussed with friends. We hope that you will use the opportunity to show them what CR is doing for consumers.

Symbols used to indicate sources of data and bases of ratings:

A—recommended on basis of quality

AA—regarded as worthy of highest recommendation

B—intermediate with respect to quality

C—not recommended on basis of quality

cr—information from Consumers' Research's own tests or investigations

1, 2, 3—relative prices, **1** being low, **3** high. Note that price and quality are completely differentiated in CR's listings; **a quality judgment is independent of price.**

41, 42—year in which test was made or information obtained or organized by the staff of Consumers' Research.

* * *

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Note: For a detailed account of CR's early history, policies, and information as to the answering of special inquiries about commodities, subscribers are urged to read the INTRODUCTION TO CONSUMERS' RESEARCH, which is sent on request to anyone without charge.

Off The Editor's Chest

WHEN A LEADER among American scientists recently referred to British opinion that 100 physicists might be as important to the safety of their nation as a million men in the army, he was making a point with which many, whether scientific specialists or not, would readily agree. It is thought that one development of scientific defensive warfare may have saved Britain from German invasion in the autumn of 1940 (by eliminating the factor of surprise). People are quick to perceive that in times of national stress it is the well-qualified specialist able to apply himself with skill and initiative to the problems of technical invention, design, production, and distribution whose work alone can provide the foundations of national safety and security behind the men and guns in the field, the ships at sea, the planes in the air.

The serious lack of highly expert, fully qualified technical and scientific specialists, now becoming evident, is bringing to the fore what is doubtless the basic defect of modern education. For if our educational methods were adapted to our national needs, and teachers as well qualified in the sciences as they should be, the number of highly trained experts qualified to search for and apply new knowledge in the exact sciences and engineering arts would be as great as the present situation calls for.

The percentage of high school pupils studying physics is now only about a third what it was in 1910, and the number is still decreasing, in an epoch when a solider grasp of the physical sciences is a veritable necessity, if not an underlying condition for national survival. In one of our states having a most expensive educational plant and system, some teachers of high school physics **have never taken a course in the subject and less than half of them have had as much as eleven semester hours of college work in physics.**

At the very moment when the crying need of our country is for more and better physical scientists and engineers (engineers' training, too, must be grounded deeply and thoroughly on physics), we are not only teaching elementary physics to fewer pupils but we are teaching those few more and more superficially and with less and less attention to the **content or meat of the science.** "Professional pedagogic groups," says The Review of Scientific Instruments, going to the very root of our national educational malady, "who are in current charge of educational trends are in general ill informed on the importance of the physical sciences [which include physics, chemistry, astronomy, geology, and the other earth sciences], on the ends to be striven for, and the proper means to be employed."

The justice of this criticism cannot be denied, for in recent years newspapers and magazines have almost daily recorded how professional educators in the main have given their major conferences and their greatest efforts and enthusiasm to explanations of the relationships of the social sciences and the problems of sociology, statistics, government, and welfare. They have permitted this expansion and overgrowth of social science interests to take place to

[Please turn to page 25, column 2]

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Announcement Regarding CR's Report on

Automobiles of 1942

As CR's COMPREHENSIVE REPORT on 1942 automobiles was on its way to the printer, the Supply Priorities and Allocations Board announcement was received, definitely and positively banning the sale of new cars until further notice. Obviously a detailed report on products which consumers are barred by government decree from purchasing is of extremely limited value to the average ultimate consumer—and that mostly academic or historic. Hence, the decision was reached not to issue the full 1942 automobile report as a chief part of CR's February BULLETIN, as originally scheduled.

It is estimated that 3,750,000 passenger cars were produced during 1941, a figure previously surpassed only in the far-off boom year of 1929. This 1941 record production was achieved in spite of the fact that during the last five months there was considerable curtailment in production by government order, due to assignment of plant facilities to defense orders. Of the cars produced, it is conservatively estimated that one-eighth, or more than 450,000, are still unsold and in dealers' hands. To this figure can be added the cars now in production and to be produced, until work on 1942 models is entirely suspended (suspension as of Feb. 1 to 10). Even half a million cars is an extremely large stock, particularly when it is realized the total American retail sales of new cars in 1932 was only about twice that figure.

The high prices of the new cars will deter many a would-be purchaser, who will make his present car serve, or purchase a secondhand one better than the one he now drives. CR believes, therefore, that a sufficient supply of new cars will be available (some held off sale for perhaps a year) for those who under the car-rationing system will be permitted to buy one. To all of that limited category of consumers who are in military and essential civilian services, e.g., clergy, medical and other professional men, police, etc., CR's report will be invaluable.

Pending the issuance and maturing of government regulations, CR tentatively plans to issue the automobile report about February 10, 1942, mimeographed as a SPECIAL BULLETIN, at 25c the copy. Subscribers to the full ($3) service who order the mimeo will also receive a confidential supplement to the automobile report; in this the 1942 cars will be listed and rated (A, B, or C). (Supplement not available to subscribers to the limited [$2] service.) The mimeo SPECIAL BULLETIN, including the supplement, will be sent free to every subscriber to the full service in the military, naval, or other essential governmental war services who so identifies himself, over his signature. (Please send 3 cents postage for mailing.) For those who may be forced to purchase a new car before our report is issued, and are in a position to do so under the rationing system to be promulgated, CR will be pleased to answer brief special inquiries on the 1942 cars for a service charge of $1.

* * *

By long hours and much extra work on the part of the technical staff and the close cooperation of the printer, we are able to substitute the accompanying comprehensive report on used cars. We believe it will be of direct and practical value and usefulness to those who must purchase a car now or in the near future.

Used Automobiles

IF YOUR PRESENT CAR is in good mechanical condition or needs only repairs that can be made at moderate cost, we suggest that instead of turning it in for a later model, you keep it, even though it be four or five years or more old. Prices are high in the secondhand market, and are pretty sure to go higher (unless the shortage of rubber for tires sets up a strong counter movement, due to the decreased usefulness of cars to consumers). For example, many 1941-model cars are now bringing 90 percent of their original sales price instead of the 75 percent they would normally have been worth after a year's use.

If you are going to buy a used car, make your selection and purchase as soon as practicable, for we believe that by late spring the market will have been pretty well picked over, and what is left will need the most careful checking and scrutiny, both as to mechanical condition and "pedigree." We shall be not at all surprised to find junked cars resurrected, by being hauled out of the rain and snow of the junk yard, made to run after a fashion, and refurbished in strategic places (cushions, mats, fenders, etc.) for the easy-money secondhand market.

* * *

The first step in purchasing a used car is to select from the table two or three cars in the general price range which interests you. The column in the table headed "Used Price" indicates the "suggested retail sales price" given by the January-February 1942 issue of the National Used Car Market Report for the lowest priced 4-door sedans, except in the case of *Bantam* or *Crosley*. While prices current now, in February 1942, may be somewhat higher, the prices given will serve at least roughly as a concrete basis for the consumer to judge whether the increase is excessive or normal.

The column headed "Brake Factor" provides a figure which is obtained by dividing the total number of square inches of brake-lining area by the weight of the car plus 750 pounds for passengers and multiplying by 1000 to avoid fractions. The figure thus obtained is used for comparative purposes as indicative of the life of the brake lining—an important factor in determining the safety of the car, and the costs of maintaining its brakes in good operating condition.

The next column shows whether the tires were adequate or not. Tires are listed as inadequate when the load per wheel (obtained by dividing by 4 the weight of the car plus 750 pounds for passengers) exceeds the desirable load limits set forth by the Tire and Rim Association, Inc., for that particular size of tire. Tires which are overloaded wear out much more rapidly than tires which are not overloaded, a matter of very much more than normal importance now that tires are extremely scarce and rigorously rationed. Under such circumstances, the purchaser should if at all possible choose a secondhand car that **does not** have overloaded tires, or if he must take a car with tires carrying more than their proper load, he should, if permitted to do so, secure a larger size of retreaded tire, e.g., 6.25 or 6.50 x 16 instead of 6.00 x 16, when the tires need replacing. When a car is listed as having no brake torque equipment, it lacks links or radius rods to prevent front axle rotation when brakes are applied hard. Lack of such equipment is unsafe, as the front springs are then required to take the brake torque.

Cumulative Listing and Rating of Used Cars Omitting Higher-Priced Models.
Model Years 1937 to 1941 Inclusive

Year	Car	Used Price	Brake Factor	Tires Adequate	Rating	Comments
1940	**B**antam 65	$ 333	28	Yes	B	Generator inadequate. No voltage regulation.
1939	Bantam (2 pass. coupe)	178	49	Yes	A	Generator inadequate. No voltage regulation.
1938	Bantam 4, 60, Business Coupe	132	▲	▲	C	Generator inadequate. No voltage regulation.
1941	**B**uick Spec. 41	1013	35	No	B	Considerable trouble with spark plugs, ignition, and carburetion systems.
1941	Buick Super 51	1140	35	No	B	See comments under *1941 Buick Spec. 41.*
1941	Buick Century 61	1134	43	No	A	See comments under *1941 Buick Spec. 41.*

▲ Information not available.

Cumulative Listing and Rating of Used Cars Omitting Higher-Priced Models.

Model Years 1937 to 1941 Inclusive

Year	Car	Used Price	Brake Factor	Tires Adequate	Rating	Comments
1941	Buick Roadmaster 71	$1167	43	No	B	See comments under *1941 Buick Spec. 41.*
1940	Buick Spec. 41	774	36	No	A	
1940	Buick Super 51	888	35	No	A	
1940	Buick Century 61	805	44	No	A	
1939	Buick 41	635	38	Yes	A	Check that rear bumpers are supported by adequate braces. In first production of these cars, rear bumpers were supported with the tank on the body shell only. Some bodies noisy. Defective water pump.
1939	Buick 61	645	40	No	A	Some bodies noisy. See comments re bumpers under *1939 Buick 41.*
1938	Buick Spec. 8	489	37	▲	A	
1938	Buick Century 8-67	503	40	▲	A	
1937	Buick 8-47	386	37	▲	A	
1937	Buick 8-67	386	41	▲	A	
1941	Chevrolet Master De Luxe	767	41	No	A	Vacuum-operated gearshift unsatisfactory in some cases.
1941	Chevrolet Special De Luxe	820	41	No	A	Vacuum-operated gearshift unsatisfactory in some cases.
1940	Chevrolet Master 85	598	43	No	B	No brake torque equipment. Vacuum-operated gearshift unsatisfactory in some cases.
1940	Chevrolet Master De Luxe	618	42	No	A	Vacuum-operated gearshift unsatisfactory in some cases.
1939	Chevrolet 85 Master	465	44	Yes	A	No brake torque equipment.
1939	Chevrolet Master De Luxe	530	43	No	A	
1938	Chevrolet Master 6	364	44	Yes	A	Trouble with ignition coils, water pumps, and clutch. No brake torque equipment.
1938	Chevrolet Master De Luxe 6	414	43	▲	A	Leaks in knee-action system.
1937	Chevrolet Master 6	309	44	▲	A	No brake torque equipment. Water pump trouble unless carefully lubricated. Trouble with brakes from soft brake drums, and other failures. Leaks in knee-action system.
1937	Chevrolet Master De Luxe 6	341	43	▲	A	See comments under *1937 Chevrolet Master 6.*
1941	Chrysler Royal 6 C-28	984	38	No	A	
1941	Chrysler Saratoga C-30-J	1125	42	No	A	
1940	Chrysler Royal 6-C-25	702	40	Yes	A	
1940	Chrysler 8-C-26	810	44	No	A	
1939	Chrysler Royal C-22	564	39	No	A	
1939	Chrysler Imperial C 23	585	45	Yes	A	
1938	Chrysler Royal 6	416	38	▲	A	Trouble with clutches.
1938	Chrysler Imperial 8	448	40	▲	A	Trouble with clutches.
1937	Chrysler Royal 6	315	39	▲	A	Trouble with universal joints.
1937	Chrysler Imperial 8	327	43	▲	A	Trouble with universal joints.
1941	Crosley CB 41	299	52	Yes	C	No brake torque equipment or voltage regulation.
1940	Crosley	212	48	Yes	C	No brake torque equipment or voltage regulation.
1941	De Soto 6, S-8	975	39	No	A	
1940	De Soto De Luxe	702	41	No	A	
1939	De Soto S-6	573	40	No	B	
1938	De Soto 6, S-5	437	39	▲	A	Trouble with weaving at high speeds and faulty clutches.
1937	De Soto 6	320	39	▲	A	Trouble with weaving at high speeds.
1941	Dodge De Luxe 6, D-19	914	40	No	A	
1940	Dodge De Luxe D-14	696	41	No	A	
1939	Dodge D 11	536	42	No	A	Leaky windshields. Bodies somewhat noisy.
1938	Dodge 6, D 8	434	40	▲	A	Many reports of failure in bearing inserts of connecting rods and main bearings; clutch trouble. No brake torque equipment.
1937	Dodge 6	338	40	▲	A	No brake torque equipment. Poor headlights and clutch trouble. See comments under *1938 Dodge* re bearing inserts.
1941	Ford Six Special	725	43	No	A	
1941	Ford V-8 Special	749	43	No	A	Some carburetor troubles.
1941	Ford De Luxe V-8	773	42	No	A	Some carburetor troubles.

Cumulative Listing and Rating of Used Cars Omitting Higher-Priced Models.

Model Years 1937 to 1941 Inclusive

Year	Car	Used Price	Brake Factor	Tires Adequate	Rating	Comments
1941	Ford Super De Luxe V-8	$822	42	No	A	
1940	Ford V-8, 60	567	49	No	A	
1940	Ford V-8, 85	599	46	Yes	A	
1940	Ford V-8, 85 De Luxe	626	45	Yes	A	
1939	Ford 60	390	48	No	A	Generator inadequate. No voltage regulation. Carburetion troubles.
1939	Ford V-8, 85	438	45	Yes	A	See comments under *1939 Ford 60.*
1939	Ford V-8, 85 De Luxe	522	44	Yes	A	See comments under *1939 Ford 60.*
1938	Ford V-8, 60	285	58	▲	A	Generator inadequate. No voltage regulation. Poor economy on cars with *Chandler Grove* carburetors. Some pistons became noisy.
1938	Ford V-8 Standard, 85	338	54	Yes	A	See comments under *1938 Ford V-8, 60.*
1938	Ford V-8 De Luxe, 85	395	52	▲	A	Poor economy on cars with *Chandler Grove* carburetors. Some pistons became noisy.
1937	Ford V-8, 60	212	58	▲	B	Brake troubles. Poor economy on cars with *Chandler Grove* carburetors. Some pistons became noisy. Some extra repair costs and troubles, but on whole gave fair to good service.
1937	Ford V-8, 85	251	55	▲	B	Brake troubles. Poor economy on cars with *Chandler Grove* carburetors. Some pistons became noisy.
1937	Ford V-8 De Luxe, 85	270	54	▲	B	See comments under *1937 Ford V-8, 85.*
1940	Graham Special 108	434	40	No	C	Generator inadequate. No brake torque equipment.
1940	Graham Supercharger 107	536	40	No	B	No brake torque equipment.
1939	Graham Spec. 96	382	40	No	C	Generator inadequate. No voltage regulation or brake torque equipment.
1939	Graham Supercharger 97	419	39	No	B	
1938	Graham Standard 6	299	40	▲	B	Generator inadequate. No brake torque equipment.
1938	Graham Special 6	311	40	▲	C	Generator inadequate. No brake torque equipment.
1938	Graham Supercharger	322	39	▲	B	No brake torque equipment.
1937	Graham Crusader 6, 85	186	37	▲	C	No brake torque equipment.
1937	Graham Cavalier 6, 95	194	34	▲	B	No brake torque equipment.
1937	Graham Supercharger 6, 116	246	42	▲	B	No voltage regulation or brake torque equipment.
1937	Graham Custom Supercharger 6, 120	251	41	▲	B	No brake torque equipment.
1941	Hudson 6, 10-T	830	38	No	B	
1941	Hudson Super 6, 11	971	37	No	B	
1941	Hudson Commodore 6, 12	1049	37	Yes	B	
1941	Hudson Commodore 8, 14	1065	35	No	B	
1941	Hudson Commodore Custom 8, 17	1187	34	Yes	B	
1940	Hudson 6-40	596	36	No	B	
1940	Hudson Super 6-41	702	41	No	B	
1940	Hudson 8-44	765	43	No	B	
1940	Hudson Country Club 6-43	702	42	No	B	
1939	Hudson 6-112	480	38	Yes	B	Generator inadequate. No voltage regulation.
1939	Hudson 6-92	519	41	No	B	
1939	Hudson 6-93	560	40	Yes	B	
1939	Hudson Country Club 8-95	596	41	Yes	B	
1938	Hudson 6, 112	333	▲	▲	B	No brake torque equipment.
1938	Hudson Terraplane 6, 81	393	43	▲	B	Generator inadequate.
1938	Hudson Terraplane 6, 82	399	42	Yes	B	Generator inadequate.
1938	Hudson 6, 83	420	41	▲	B	
1938	Hudson 8, 84	471	43	▲	B	
1937	Hudson Terraplane De Luxe 6	270	43	▲	B	Excessive oil consumption and transmission failures. Brake troubles.
1937	Hudson Terraplane Super De Luxe 6	309	42	▲	B	See comments under *1937 Hudson Terraplane De Luxe 6.*
1937	Hudson 6	327	41	▲	B	Trouble with electric shift, clutch discs, transmission gears, and universal joints.
1937	Hudson 8	345	43	▲	B	See comments under *1937 Hudson 6.*
1939	Hupmobile Jr. 6-R915	▲	45	No	B	No brake torque equipment.
1939	Hupmobile 6-922E	317	40	No	C	No brake torque equipment.
1939	Hupmobile 8-925H	338	43	No	C	No brake torque equipment.
1938	Hupmobile 6, E	260	40	▲	B	

Cumulative Listing and Rating of Used Cars Omitting Higher-Priced Models.

Model Years 1937 to 1941 Inclusive

Year	Car	Used Price	Brake Factor	Tires Adequate	Rating	Comments
1938	Hupmobile 8	$251	43	▲	B	
1941	Lincoln Zephyr	1235	38	Yes	A	
1940	Lincoln Zephyr	854	38	Yes	A	
1939	Lincoln Zephyr	581	38	Yes	A	
1938	Lincoln Zephyr	461	39	▲	A	
1937	Lincoln Zephyr	272	41	▲	A	No voltage regulation.
1941	Mercury V-8	822	41	Yes	B	
1940	Mercury V-8	701	44	No	A	
1939	Mercury V-8	545	43	No	A	Some clutch troubles.
1941	Nash Ambassador 600	795	44	No	B	
1941	Nash Ambassador 6	950	43	No	B	
1941	Nash Ambassador 8, 4187	1034	42	Yes	B	
1940	Nash Lafayette 6, 4010	666	42	No	B	
1940	Nash Ambassador 6, 4020	749	41	No	B	Report of excessive oil consumption.
1940	Nash Ambassador 8, 4080	854	48	No	B	
1939	Nash Lafayette Special 39-19	524	40	No	C	Generator inadequate. No voltage regulation or brake torque equipment.
1939	Nash Ambassador 6	584	41	No	B	No brake torque equipment.
1939	Nash Ambassador 8-39-80	645	48	Yes	B	No brake torque equipment.
1938	Nash Lafayette 6, 3810	410	43	▲	C	Generator inadequate. No voltage regulation or brake torque equipment. Carburetor troubles.
1938	Nash Ambassador 6	444	41	▲	B	See comments under *1938 Nash Lafayette 6, 3810.*
1938	Nash Ambassador 8, 3880	470	48	▲	B	Carburetor troubles. No brake torque equipment.
1937	Nash Lafayette 6, 400	327	44	▲	B	No brake torque equipment. Carburetor troubles.
1937	Nash Ambassador 6	336	43	▲	B	Carburetor troubles. No voltage regulation or brake torque equipment.
1937	Nash Ambassador 8	363	48	▲	B	Carburetor troubles. No brake torque equipment.
1941	Oldsmobile Special 6, 66	930	37	No	A	
1941	Oldsmobile Special 8, 68	938	36	Yes	B	The 8-cylinder engine not justified with *Hydra-Matic* transmission.
1941	Oldsmobile Dynamic 6, 76	995	41	Yes	A	
1941	Oldsmobile Dynamic 8, 78	995	40	No	B	See comments under *1941 Oldsmobile Spec. 8, 68.*
1941	Oldsmobile Custom 6	1075	41	Yes	A	
1941	Oldsmobile Custom 8, 98	1053	40	Yes	B	
1940	Oldsmobile 6-60	696	39	No	A	
1940	Oldsmobile 6-70	749	37	Yes	A	
1940	Oldsmobile 8-90	822	40	Yes	A	
1939	Oldsmobile 6-60	549	39	No	A	
1939	Oldsmobile 6-70	585	38	No	A	Faults in clutch thrust bearings.
1939	Oldsmobile 8-80	593	40	Yes	A	
1938	Oldsmobile 6-F-38	465	37	▲	B	Bodies somewhat noisy.
1938	Oldsmobile 8	480	38	▲	A	Bodies somewhat noisy.
1937	Oldsmobile 6	371	36	▲	A	Bodies somewhat noisy.
1937	Oldsmobile 8	381	38	▲	B	Bodies somewhat noisy.
1941	Packard 110, 1900	965	40	Yes	B	
1941	Packard 120	1110	40	Yes	B	
1941	Packard Super 8	1448	43	Yes	A	
1940	Packard 6-110, 1800	758	40	Yes	A	
1940	Packard 120-1801	873	40	No	B	
1939	Packard 6-1700	635	40	Yes	A	
1939	Packard 8-1701	672	42	Yes	A	
1938	Packard 6-1600	482	39	▲	A	
1938	Packard 8-1601	489	41	▲	A	
1937	Packard 6	333	42	▲	B	
1937	Packard 8-120	341	43	▲	B	Repairs expensive and more frequently required than normal.
1941	Plymouth 6, P-11	767	40	Yes	A	
1941	Plymouth De Luxe P-11	817	39	Yes	A	
1940	Plymouth Roadking	585	40	No	A	
1940	Plymouth De Luxe	623	39	No	A	
1939	Plymouth Roadking P7	446	40	No	A	Generator inadequate. No voltage regulation.

Cumulative Listing and Rating of Used Cars Omitting Higher-Priced Models.

Model Years 1937 to 1941 Inclusive

Year	Car	Used Price	Brake Factor	Tires Adequate	Rating	Comments
1939	Plymouth De Luxe P8	$512	39	Yes	A	
1938	Plymouth 6, Business P5	350	39	No	A	Generator inadequate. No brake torque equipment.
1938	Plymouth De Luxe 6, P6	390	39	▲	A	No brake torque equipment.
1937	Plymouth Business 6	270	42	▲	A	No brake torque equipment. Reports of transmission and bearing insert failures; also carburetor troubles.
1937	Plymouth De Luxe 6	323	41	▲	A	See comments under *1937 Plymouth Business 6.*
1941	Pontiac De Luxe Torpedo 6, 25	884	36	No	B	
1941	Pontiac De Luxe Torpedo 8, 27	890	35	No	B	
1941	Pontiac Streamliner Torpedo 6, 26	952	35	No	A	
1941	Pontiac Streamliner Torpedo 8, 28	954	34	No	B	
1941	Pontiac Custom Torpedo 6, 24	1002	35	No	B	
1941	Pontiac Custom Torpedo 8, 29	1016	35	No	B	
1940	Pontiac Special 6-40-25	683	38	No	A	
1940	Pontiac De Luxe 6-40-26	729	38	No	A	
1940	Pontiac De Luxe 8-40-28	752	37	Yes	B	Used single instead of desirable dual carburetor.
1940	Pontiac Torpedo 8-40-29	831	35	No	A	
1939	Pontiac Quality 6-25	585	40	No	A	
1939	Pontiac De Luxe 6-26	597	38	No	A	
1939	Pontiac De Luxe 8-28	599	37	Yes	B	Used single instead of desirable dual carburetor.
1938	Pontiac 6-6 DA	455	40	▲	A	Bodies somewhat noisy.
1938	Pontiac 8-8 DA	503	39	▲	B	Bodies somewhat noisy. Used single instead of desirable dual carburetor.
1937	Pontiac 6	356	40	▲	A	Knee-action systems gave trouble. Bodies somewhat noisy.
1937	Pontiac 8	359	39	▲	B	Had single instead of desirable dual carburetor. Bodies somewhat noisy. Knee-action systems gave trouble
1941	Studebaker Champion	774	39	Yes	A	
1941	Studebaker Commander 6, 11A	966	38	Yes	A	
1941	Studebaker President 8, 7C	1053	41	Yes	A	
1940	Studebaker Champion	602	40	Yes	A	
1940	Studebaker Commander 10-A	714	38	Yes	A	
1940	Studebaker President 8-6C	830	41	Yes	A	
1939	Studebaker Commander 6-9A	578	38	No	A	
1939	Studebaker President 5C	615	40	Yes	A	
1938	Studebaker 6, 7A	450	38	▲	A	
1938	Studebaker Commander 6, 8A	465	38	▲	A	
1938	Studebaker President 8, 4C	503	41	▲	A	
1937	Studebaker Dictator 6	281	36	▲	A	Brake torque equipment on some models only. Means for draining radiator inaccessible. Noisy shock absorbers.
1937	Studebaker President 8	318	35	▲	A	
1941	Willys Americar 441	593	42	Yes	B	No brake torque equipment.
1940	Willys Speedway 440	468	43	No	A	No brake torque equipment.
1940	Willys De Luxe 440	494	43	Yes	B	No brake torque equipment.
1939	Willys 39	299	45	Yes	B	Reports of bodies being somewhat noisy. Generator inadequate. No voltage regulation or brake torque equipment. Good service reported up to 30,000 miles.
1938	Willys 4, 38	221	44	▲	A	Generator inadequate. No brake torque equipment. Bodies somewhat noisy. Good service reported.
1937	Willys 4, 37	143	45	▲	A	Bodies somewhat noisy. Good service reported up to 30,000 miles. No brake torque equipment.

It should be remembered that a car with an *A* rating which has not received good care may be a much less desirable purchase than a *B*-rated car which has been well taken care of or perhaps been given little use, or use by an unusually careful driver. Checking the used car for its condition is a job for an expert, and if possible the purchaser should engage a competent mechanic to go along and examine the car before a final decision is reached. Whether or not you employ a mechanic, all the following points should be checked with care:

Chassis, Body and Tires

1. Get underneath and inspect the frame carefully for any signs of welding or straightening. Places where heat has been applied to the frame to straighten it are usually rusty or painted over and can easily be detected.

If the frame has been welded or straightened, most purchasers would do well not to consider the car further, for a car that shows evidence of having been in a wreck represents a pretty doubtful purchase, however low its price may seem.

2. Examine fenders. Evidences of minor straightening are usually not important, but a new fender should be looked upon with suspicion, for it usually means the car has been in a bad accident, sufficiently bad to damage the original fender beyond repair.

3. Often one can get some idea of the mileage on a car by examining the pedals and the front floor mat for wear, if these surfaces have not been replaced with new ones. If they are new, the probability is high that the car has had long or hard use. If the seats are equipped with covers, remove them to ascertain whether they have been put on to hide badly worn seats, also a sign of long or hard use of a car. The mileage on the odometer can usually be disregarded, for most odometers are set back to a lower mileage or to zero.

4. Examine the tires with care; their condition may give some indication of the mileage the car may have traveled, and also some indication of abuse and careless driving. A car with tires of more than one make has probably gone over 20,000 miles. Make sure the tires have not been regrooved, for with careless work the regrooving may even have been carried through into the cords of the tire; any such tire would be dangerous and likely to fail at an early date. Check the tires, especially the surfaces which can only be seen when lying under the car, for cuts and bruises. With the present tire situation, very careful attention must be given by most consumers to obtaining a car with good tires; the importance of such tires for persons not exempt from tire rationing requirements cannot be overstressed, and consumers would do well to avoid any car having tires of poor or uncertain quality, unless they are reasonably certain, because of their trade or profession, of being able to obtain replacement tires, retreads or other usable tires.

5. Look for stains around windshield, windows, and the top of the car. If present, they indicate car leaks that occur in heavy rains.

6. Have one of the wheels of the car removed, and examine the brake linings for wear and brake drums for scoring. If the brake linings are almost worn down to the rivets, they will soon need relining; sometimes a "doping" material having gummy characteristics will have been used, to make bad brakes perform well while the car is being demonstrated.

7. Jack up one rear wheel. With the transmission in high gear, rotate the wheel by hand from extreme forward to extreme back position to determine how large is the rear-end and drive-shaft backlash. Repeat with the car in second gear to get an idea of the amount of wear in the transmission.

8. Jack up the front wheels of the car. Grasp the front wheels firmly at top and push and pull in line with the front axle. Watch the king-pin joint for any undue slack motion. There is no adjustment to take up wear in this place—replacement of the king pins is the only safe procedure if the wear is considerable. If the car is equipped with independent wheel suspension in front, this should be carefully examined for wear, and leakage in the case of mechanisms enclosed in a lubricant-filled casing.

9. Investigate the transmission and rear-end grease. If buying from a possibly gyp or unreliable dealer, invite the salesman to dip a stick deep into the filling hole so that you may see whether these housings are filled with grease alone, or with sawdust, oatmeal, ground cork, etc., sometimes mixed with the grease to quiet the noise of worn gears.

10. Check shock absorbers and links; these are often in bad condition on a used car, particularly a car that has not been well maintained and regularly serviced.

Engine

1. Before starting up the engine, i.e., with the engine cold, examine the crankcase oil. If it is of a fairly light grade (low viscosity, e.g., S.A.E. 20 or 30), the chances are that the motor is in good or fair condition. If the oil is heavy, like S.A.E. 40 or 50, this will often be an indication that heavy oil is being used to quiet a noisy motor having loose-fitting pistons and bearings, and to hold oil consumption down to a more reasonable figure than would be given with a light or normal oil.

2. Check whether starter turns the motor

easily. If it does not, the battery is probably undersized, and the starter lacks enough power. Check gravity of cells—inequality often indicates a bad cell. Weak batteries are a common weakness of secondhand cars —often good batteries are taken out and sick or ailing batteries substituted (if the dealer is one of a not-too-scrupulous or gyp type). Is the motor noisy? If it clatters when cold, and before oil circulation has reached normal, loose or badly fitted pistons are indicated. If there is excessive thumping when the engine has warmed up, this might indicate loose bearings, worn pistons or rings, or faulty ignition.

3. When the engine is started, also when it is accelerating after an idling period, look for blue smoke from the exhaust. Appearance of a fog or haze of bluish lubricating-oil smoke is usually an indicator of excessive oil consumption, frequently due to worn rings or pistons, or both. (Do not confuse this with the white steam or water vapor produced by a car on starting in cold weather.)

4. Examine radiator and water pump for leaks, or places where there have been leaks, evidenced by rust or salts deposited from the cooling water.

5. Check the exhaust system for leaks. Any leaks at all from the exhaust piping or muffler are a serious hazard, for such a condition may permit dangerous carbon monoxide fumes to seep into the car.

6. Check oil and ammeter gauges to see whether they show satisfactory oil pressure and charging rate. In late-model cars with voltage regulator the ammeter may show low charging rate if the battery is fully charged, and yet be perfectly satisfactory.

7. Check windshield wipers. If the car is equipped with radio and a heater these should also be examined.

Road Operating Tests

1. The car should be taken out on the road and driven for an hour or more. Drive the car up a steep hill. If the engine is quiet and pulls well and evenly, it will probably prove to be in reasonably satisfactory mechanical condition. Another test is to drive it about 15 miles per hour in third speed and alternately open and close the throttle suddenly. This will show up any significant amount of lost motion due to wear or bad adjustment in clutch, transmission, universal joints, and differential. If there is considerable lost motion, the car should not be bought unless the seller will agree in writing to have the worn parts replaced or otherwise put into good, lasting, workmanlike condition, that is, a permanent, not just a makeshift, repair.

2. Have someone outside and back of the car tell you whether the rear wheels follow in the tracks of the front ones when the car is going in a straight line. If the car is out of line, due to an accident or abuse, so that the wheels do not track, tire wear will be grossly abnormal, resulting in greatly decreased tire mileage; and steering will be hard, while almost any part may be subsequently subject to unexpected breakage due to the heavy strain set up in service. Also, if the tires are cupped or not worn uniformly on both sides of their central or bisecting plane perpendicular to the axle, this indicates misalignment of the wheels or frame.

3. Check to see that the car steers properly at all speeds, without "tramp" or pounding or other peculiar action.

4. Apply the brakes when the car is traveling at 40 to 45 miles an hour to determine whether they function without grabbing, chattering, or any marked tendency to pull the car out of a straight path. After the car has been brought to rest, get out and examine the marks made by the tires as the car was stopped. If they are of approximately equal lengths, the brakes are probably satisfactory. Test the brakes (cautiously) also on a curve for chattering and grabbing, swerving, or other abnormal action, and remember that faulty brakes are likely to get worse, and may endanger your life and the lives of others.

5. Investigate the gasoline supply to see what fuel is being used. It is said that ether (you will be able to smell it if any is present) has been used to improve performance during a short demonstration by dishonest dealers, and if that has been done, accelerating and climbing performance with ordinary gasoline will seem poor.

6. If the value of the car warrants the trouble (this would usually be the case if a reasonably new model is under consideration), it should be taken to a service station equipped with a dynamometer for a thorough check on that machine.

7. The prospective car purchaser should

take precautions that he does not buy, without knowing what he is getting, any car that has been in taxi service. In some places, particularly near large cities, a good many worn-out or over-aged taxis are sold on the secondhand car market, though, of course, not for what they are. (In at least one city, car dealer licensing provisions prohibit the sale of any public conveyance without informing the purchaser of its prior use.)

Bill of Sale, etc.

The bill of sale should be examined carefully and checked against the motor and serial numbers on the car and proof also obtained that the car has a clear title. In some cases, if the car is bought from an unreliable or fly-by-night dealer, it might turn out that the car was one appearing on the police records as having been stolen at some previous time and disposed of through the underground motor trade or a "fence." The careful buyer will, however, avoid any dealer with respect to whose showroom or sales arguments there is the slightest ground for suspicion of dishonesty or undesirable connections. (There are usually a number of such automobile merchants in the larger cities.) The name and address of the previous owner should also be noted and, if possible, inquiries should be made of him before the purchase is finally concluded. In some cases, the previous owner may be willing to answer reasonable questions concerning his experience with the car.

* * *

If possible, obtain at least a 60-day guaranty from the date of purchase against the usual defects and an explicit provision to provide for correction without cost of defects which were latent in the car at the time of sale but which were not disclosed to the purchaser and were not discovered by him on account of the obvious difficulties of making a complete examination of a used car under salesroom or storage lot conditions.

While the items listed here make no claim to completeness, they are, in CR's opinion, the most important things that the ultimate consumer can check and guard against on his own initiative, or with ordinary mechanic's assistance. However, if the car you are interested in should fall down on a number of the points enumerated, it does not necessarily mean that the car is not a good buy, because except for cars that have been in an accident, most things that are not fundamentally bad can be repaired or replaced.

If a car has a number of faults or evident defects of condition or performance, the consumer has a right to expect that it will be sold at a price appreciably "below the market" obtaining at that time and place. (Bear in mind that market prices will fluctuate in a much more pronounced way, both with time and place, than hitherto.) It is worth noting, however, that the offering of any car at a price that seems to be a rare or exceptional bargain and far below the market is cause for suspicion of its condition or the goodness of its title. Suspicion also is in order, as a rule, in any case where the dealer insists upon the prospective purchaser's making an "immediate decision."

Correction to Consumers' Research Bulletin

Phonograph Records December 1941 Page 27, Col. 1	Tschaikowsky: *Symphony No. 4.* Change last sentence to read: "Nearly equals Victor's outstanding M327." Reference to M357 was a typographical error.

Conservation of Automobile Tires

ALL THOSE WHO READ the newspapers and listen to the radio should by now be aware of the importance of taking the most careful and consistent precautions to conserve automobile tires. Few people, however, are familiar with the details of the methods which must be followed in order to obtain the maximum mileage and long life from their tires. This subject was discussed at some length in the article "Gasoline, Oil, and Tires—How to Make Them Go Farther" in CR's October 1941 BULLETIN.

We plan to re-issue this information on tires, with much additional and newer data, in the form of a free SPECIAL BULLETIN, as CR's contribution to help consumers solve the problems caused by the present acute shortage of rubber. This SPECIAL BULLETIN will soon be available on request accompanied by a 3 cent stamp, to cover mailing costs.

Lightweight Girdles and Corsets

THE last trip of the luxury liner "Normandie" in the summer of 1939 brought fashion news that the corset of the Nineties with its wasp waist and curves above and below would be high fashion. The hourglass shape, however, appeared to make little headway, and one fashionable New York shop advertised, indeed, that the "old-fashioned" corset was out.

Lightweight girdles and corsets have been exceedingly popular because they are comfortable. It is difficult to lead an active life playing golf and driving a car all trussed up in steel stays. It should be pointed out, however, that even a lightweight, inexpensive girdle should be carefully selected and carefully fitted. The great American gesture of yanking down the girdle is primarily one of adjusting an ill-fitting garment.

Guides to Wise Buying

There are a few general rules which should be observed in purchasing a foundation garment. First of all, it is important to have a garment fitted by an experienced, well-trained corsetiere every time a purchase is made. The proper fitting of a garment before purchase may save a trip to return an unsatisfactory garment. One variety-store manager, for example, reported that although there was a brisk sale of medium-priced bras and girdles at the main floor counter, returns were many because they could not be successfully sold without a fitting.

Then before the garment is finally purchased, the wearer should make certain that it is comfortable when she is standing, walking, or sitting. It is advisable also to explain to the fitter whether the wearer spends most of her day standing on her feet or sitting, or whether she is otherwise engaged in active sports or does a great deal of stooping and bending (as in filing work in offices). There are some corsets which are comfortable and afford great support to a person who is on her feet for a considerable time but which are quite uncomfortable on a person engaged in an office, for example, where she sits at a desk the greater part of a day.

A third point to bear in mind is that the fitter should also be allowed to try on the customer several types of garments in order to ascertain the style which is most likely to be the proper type for the individual's figure. It has been suggested that two garments should be purchased at one time. This is particularly good advice in these days when the garment is worn next to the skin and needs frequent washing. It is reported that a foundation garment which is washed every two weeks will have an estimated life of proper fit of three months. Of course, the actual material in a corset may last for a year or two, but the elastic will likely lose its control properties after three months.

Prices of girdles and corsets are definitely on the rise. One trade journal has pointed out that the $3.95, $5.95, $6.50, and $8.50 garments are most prominently featured. The difficulties in the manufacture of such garments are that supplies of needles, steel boning, eyelets, and slide fasteners have been cut. According to one trade expert, there is a growing shortage of brass for slide fasteners and steel for garter tips. Furthermore, elasticized yarn is being diverted for army use in making wide bands to hold bedding on cots when they are transported. Now that rubber supplies from the East Indies have been cut off, it will doubtless be unavailable, or at any rate scarce, for use in foundation garments. It is very important, therefore, to take special care to conserve garments in present use and make them last as long as possible.

Rules for Proper Care

Proper methods of washing deserve special attention. The American Institute of Laundering holds that women do not wash foundation garments often enough, and when they do, they do not wash them properly. The Institute recommends that all slide fasteners should be closed and the garment put into a small wash net to minimize frictional wear wherever possible. The temperature of the wash-water should be from 50° to 110°F. A white or pink garment should be washed in water not exceeding 90° to 100°F; a black

garment should be washed in water not exceeding 70°.

For average soil, give one five-minute suds followed by two ten-minute suds, draining the water after each suds. The average woman will, no doubt, find it more convenient to dunk the garment up and down in a bowl of suds, rinsing it thoroughly after each sudsing. The garment should then be rolled in a turkish towel to extract the excess moisture, and dried at room temperature.

Factors Covered by CR's Test

In order to ascertain the comparative wearing quality of a number of the lower-priced garments, CR selected 14 girdles in the $2 to $4 grade. This range represented prices paid in the fall of 1941. It is quite possible that the garments are no longer available except at somewhat higher prices. The girdles were subjected to a series of examinations to determine and evaluate their principal features. These examinations included an expert appraisal of the workmanship, including the care used in sewing and finishing the garments, a measurement of their stiffness, their seam strength, garter strength, snag resistance, strength of the elastic fabric, and resistance to runs (in the course of use, the elastic threads may cut and cause "runs" in the fabric which thereby loses its elasticity). The girdles were also examined for resistance to perspiration and oily material simulating body secretions.

One girdle tested was different from all others in the group, being made entirely of rubber. Although it merited a B rating so far as workmanship, construction, and durability were concerned, it should be pointed out that an all rubber girdle presents certain difficulties. First, it blocks all ventilation of the skin and so is very warm. If worn next to the skin as recommended, it will cause considerable perspiration. Second, since the rubber is not surrounded by textile material, it swells more freely under the action of the body oils, and tends also to cause the body to produce more of these oils than other girdles. The ventilating holes provided do not accomplish their purpose of offsetting the non-porous character of the rubber. The effect of the body secretions requires daily washing in tepid water and suds as called for in the directions. In actual use, it appears difficult to powder the rubber girdle sufficiently to prevent it from adhering to the skin of the wearer in an hour or two. This adhesion prevents any differential movements of skin and rubber, and tends to make the girdle definitely uncomfortable. All ratings are cr42.

A. Recommended

Kayser, 19001 (Julius Kayser & Co., 500 Fifth Ave., New York City) $2. A lightweight, medium-restraint girdle. Properties of elastic fabric, better than average. Resistant to snagging. Garters securely attached. Fabric resisted runs well. Other properties satisfactory. **1**

Hickory "Duranet" (A. Stein & Co., Chicago; N.Y.C.) $3.50. A medium-weight, medium-restraint girdle. Properties of elastic fabric, slightly below average. Medium resistance to snagging. Garters very secure. Fabric resistant to runs. Other properties satisfactory. **2**

Mabs-Hollywood (Mabs of Hollywood, 1024 Santee, Los Angeles; sold by Best & Co., Fifth Ave. and 35, N.Y.C.) $3.95. A medium-weight, medium-restraint girdle. Properties of elastic fabric, better than average. Very good resistance to snagging. Garters weak. Fabric resistant to runs. Workmanship only fair. Other properties satisfactory, but judged more likely to form a "roll" at top of abdomen than others tested. **3**

B. Intermediate

Playtex "Living" (International Latex Corp., Playtex Park, Dover, Del.) $2.50. Medium-weight, medium-restraint girdle. Made of rubber sheet, which stretches in all directions equally well. Elastic properties, better than average. Readily snagged. Garters well attached. Susceptible to tearing if cut or punctured while under tension of being put on. Other properties satisfactory. **1**

Carter's Angeleno (The Wm. Carter Co., Needham Heights, Mass.) $3.50. Medium-weight, medium-restraint girdle. Properties of elastic fabric, better than average. Medium resistance to snagging. Garters well attached. Resistance to runs, average. Other properties satisfactory. **2**

College Girl Step-in, No. 7297 (Venus Foundation Garments, Inc., 123 N. Wacker Dr., Chicago) $3.50. A heavy-weight, high-restraint girdle. Properties of elastic fabric, slightly below average. Medium resistance to snagging. Garters well attached. Resistance to runs, average. Workmanship only fair. Other properties satisfactory. **2**

Flexees "Grecian" (Flexees, 417 Fifth Ave., N.Y.C.) $3.50. A heavy-weight, high-restraint girdle. Properties of elastic fabric, below average. Medium resistance to snagging. Garters well fastened. Very resistant to runs. Other properties satisfactory. **2**

Nemo Sensation N Whims (Nemo Corset Co., 385 Fifth Ave., N.Y.C.) $3.50. Medium-weight, high-restraint girdle. Properties of elastic fabric, good. Medium resistance to snagging. Garters somewhat weak. Resistance to runs, better than average. Workmanship only fair. Other properties satisfactory. **2**

[Completed on page 14]

Boiler-Burner Units and Boilers for Use with Oil Burners

DO NOT USE a "square" sectional boiler for oil firing with fewer than two intermediate sections or a round vertical boiler with fewer than two intermediate "pancake" sections. To operate satisfactorily with a burner, a boiler should have a large combustion space, ample heat-absorbing surface, and narrow flue passages. Efficiency in supplying domestic hot water is often an important consideration, as well. Cast-iron boilers transmit less noise, are less expensive, and usually last longer than steel boilers, but they are not so efficient, and with the cast-iron boiler one runs the risk that a leak may develop through cracking.

In boiler-burner units, the boiler is usually of one make and the oil burner of another. If one already owns a suitable boiler in good condition, it is generally better to install a conversion burner rather than to take the loss involved in taking out the boiler and replacing it with a combination boiler-burner unit.

Too many people have associated oil burners with fancy or attractive jacket arrangements which are nothing more than a nicely made "package" that helps to sell the machine, and as a result the consumer often buys an oil burner on somewhat the same basis as he buys an automobile—for its appearance rather than its performance. There will be less temptation to make this mistake if the reader will remember that jackets can be obtained as separate items for many different makes of boilers.

There are a few hand-fired coal-burning boilers which do not give good efficiency when fired with a conversion oil burner, but in such cases the efficiency can often be increased by adding one or more intermediate sections and by installing a baffle in the combustion chamber. The "matching" of the burner to the boiler is important, and can and should be done by the heating contractor when installing the burner.

If domestic hot water is to be heated by a coil immersed in the boiler water, the most satisfactory location for the coil is in a horizontal position, near the top of the boiler. This position of the coil gives best efficiency when heating water during mild weather and during the summer.

The question of continued availability of fuel oil under a war economy should be carefully considered by anyone proposing to install any sort of oil-fired heating or oil-fired domestic hot-water supply equipment to replace a coal-burning system. At the present time no definite information seems to be available on future fuel-oil supplies, and until

LIGHTWEIGHT GIRDLES AND CORSETS

[Continued from page 13]

Jantzen, Style B5 (Jantzen Knitting Mills, Dover, N.J.) $4. Medium-weight, medium-restraint girdle. Properties of elastic fabric, average. Resisted snagging well. Garters well attached. Somewhat susceptible to runs, being a knit fabric. Other properties satisfactory. 3

Slimtite by Western Maid (Western Underwear Co., Inc., 76 Madison Ave., N.Y.C.) $3.98. Lightweight, low-restraint girdle. Properties of elastic fabric, above average. Snagged easily. Garters well attached. Resisted runs to better than average degree. Other properties satisfactory. 3

C. Not Recommended

Girdle purchased from Lord & Taylor, N.Y.C., advertised as made by Kleinert. $2. Lightweight, soft-restraint girdle. Properties of elastic fabric, very slightly above average. Snagged easily. Garters weak. Below average in resistance to runs. Other properties satisfactory. 1

Van Raalte Slendares (Van Raalte Co., Inc., 417 Fifth Ave., N.Y.C.) $2. Lightweight, medium-restraint girdle. Properties of elastic fabric, better than average. Easily snagged. Garters weak. Below average in resistance to runs. Other properties satisfactory. 1

Montgomery Ward's No. 32—2075. $2.88 plus postage. Heavy-weight, high-restraint girdle. Properties of elastic fabric, below average. Moderately resistant to snagging. Garters satisfactory. Resistance to runs, average. Workmanship only fair. Other properties only fair. 2

Co-ed, Sears-Roebuck's No. 18—489. $2.94 plus postage. Medium-weight, high-restraint girdle. Properties of elastic fabric, slightly below average. Readily subject to snagging. Garters weak. Above average in resistance to runs. Workmanship only fair. Other properties satisfactory. 2

such time as positive information is at hand, from responsible government officials (not general or publicity advices of governmental or oil company executives), subscribers are advised to proceed with caution. They should in any event, we believe, install, for the present, no oil-burning equipment of any expensive type that does not provide for **quick and inexpensive conversion** to coal burning if and when necessary.

In the following listings, information showing make of boiler and make of burner has been given for the boiler-burner units when it was readily available.

Boiler-Burner Units

A. Recommended

Carrier, 61B and 61F (Carrier Corp., Syracuse, N. Y.) *Carrier* burner combined with a *Fitzgibbons* steel boiler.

Esso, Series EBF (Gilbert & Barker Mfg. Co.; distrib. Standard Oil Co. of N. J., 26 B'way, N.Y.C.) *Esso* burner combined with *U.S-25* cast-iron boiler.

Esso, Series EC (Gilbert & Barker Mfg. Co.; distrib. Standard Oil Co. of N.J.) *Esso* burner combined with *Smith No. 150 Mills* cast-iron boiler.

Gilbarco, BF Series (Gilbert & Barker Mfg. Co., Springfield, Mass.) *Gilbarco* burner combined with *U.S-25* cast-iron boiler.

Oakmont (American Radiator & Standard Sanitary Corp., 40 W. 40, N.Y.C.) *Arcoflame* burner combined with *Ideal* No. 8 cast-iron boiler.

Quiet May, Type DU (May Oil Burner Corp., Baltimore) Cast-iron boiler.

Timken GC Oilboiler (Timken Silent Automatic Div., The Timken-Detroit Axle Co., Detroit) *Timken* GC burner with *Ideal* No. 11 cast-iron boiler.

Westinghouse, OBE Series (Westinghouse Electric & Mfg. Co., Springfield, Mass.) *Westinghouse* burner with *International* cast-iron boiler.

B. Intermediate

ABC (Automatic Burner Corp., Chicago) *ABC* burner with *Columbia* steel boiler.

Airtemp (Airtemp Div., Chrysler Corp., Dayton, Ohio) Cast-iron boiler.

Aldrich Heat-Pak (Aldrich Co., Wyoming, Ill.) Steel. Efficiency of these boilers depends upon use of stainless steel combustion chambers, which may not continue to be available, due to war conditions.

Delco (Delco Appliance Div., General Motors Sales Corp., Rochester, N. Y.) Models DB-3, DB-4, DSS, and DSW. Models DB-3 and DB-4 have cast-iron boilers. Models DSS and DSW have steel boilers. Efficiency of these boilers depends upon use of stainless steel combustion chambers, which may not continue to be available, due to war conditions.

Econolux (S. T. Johnson Co., Oakland, Calif., and Philadelphia) Downdraft steel boiler. Requires good chimney draft.

General Electric Oil Furnace (General Electric Co., Bloomfield, N. J.) Downdraft steel boiler. Requires good chimney draft. Price considered high.

Petro Automatic Boiler (Petroleum Heat & Power Co., Stamford, Conn.) Judged less desirable than the other boiler-burner units listed. Steel boiler.

Quiet May, Type CRC (May Oil Burner Corp.) *Quiet May* burner with *National* No. 1 cast-iron boiler.

Timken, Model BAR-3 (Timken Silent Automatic Div., The Timken-Detroit Axle Co.) *Timken* burner with *Capitol OB* cast-iron boiler.

Williams Oil-O-Matic LB Series (Williams Oil-O-Matic Heating Corp., Bloomington, Ill.) *Williams* automatic burner with *National* No. 2 cast-iron boiler.

Williams No. 1 Series (Williams Oil-O-Matic Heating Corp.) *Williams* burner with *National* No. 1 cast-iron boiler.

Boilers for Use with Oil Burners

A. Recommended

Burnham Yellow-Jacket (Burnham Boiler Corp., Irvington, N. Y., and Zanesville, Ohio) Cast-iron.

Fitzgibbons, 400 Series, Oil-Eighty (Fitzgibbons Boiler Co., Inc., 101 Park Ave., N.Y.C.) Steel. *Oil-Eighty* is somewhat more efficient than the *400 Series*, but for moderate-size homes the difference is small.

Heggie Simplex (Lookout Boiler & Mfg. Co., Chattanooga, Tenn.) Steel.

Ideal, No. 11 (American Radiator & Standard Sanitary Corp., 40 W. 40, N.Y.C.) Cast-iron.

Pacific Square Steel Boiler (Pacific Steel Boiler Div., United States Radiator Corp., Detroit)

Royal Semi-Tubular (Hart & Crouse Corp., Utica, N.Y.) Cast-iron, with steel tubes.

Smith No. 150 Mills (The H. B. Smith Co., Inc., Westfield, Mass.) Cast-iron.

Spencer "K" (Spencer Heater Div., Aviation Mfg. Corp., Williamsport, Pa.) Steel.

U.S-25 (United States Radiator Corp.) Cast-iron.

Weil-McLain, No. 67 (Weil-McLain Co., Michigan City, Ind.) Cast-iron.

B. Intermediate

Burnham No. 1 Series (Burnham Boiler Corp.) Cast-iron.

Capitol Red Top, Capitol Red Cap, Capitol OB (United States Radiator Corp.) Cast-iron.

Columbia (Columbia Boiler Co., Pottstown, Pa.) Steel.

Fuel-Saver, Type DD (The International Boiler Works Co., E. Stroudsburg, Pa.) Cast-iron.

Ideal Redflash, *Ideal* No. 7 (American Radiator & Standard Sanitary Corp.) Cast-iron.

Indestructo, Sears-Roebuck's No. 42—8684 and 42—8685. Cast-iron.

Montgomery Ward's No. E281—7870 and E281—7871. Cast-iron.

National, No. 1 and No. 2 (The National Radiator Co., Johnstown, Pa.) Cast-iron.

National Premier (The National Radiator Co.) Steel.

Peerless, EA Series (The Eastern Foundry Co., Boyertown, Pa.) Cast-iron.

Pierce-Century (Pierce Butler Radiator Corp., Syracuse, N. Y.) Cast-iron.

U.S-20 (United States Radiator Corp.) Cast-iron.

Weil-McLain, "A" Series (Weil-McLain Co.) Cast-iron.

Winter Gasolines

THE WISE AND PATRIOTIC MOTORIST is glad these days to help his country in conserving essential supplies, and to save gasoline in every possible way.[1] Gasoline may be saved by reducing speed of travel, by starting and stopping more slowly, and by keeping one's automobile, and especially the carburetor, in good mechanical condition. It is also helpful to keep the level of gasoline high in the tank but not so high that overflowing or spillage is likely to occur. It is of value too in hot weather to park in the shade whenever possible. This helps to reduce losses of gasoline by vaporization.

Most motorists do not fully realize how much they must pay for speeding. Not only does gasoline consumption rapidly increase with speed, but oil and tire consumption and repair costs increase also. According to tests of CR and the Bureau of Standards, around 12% more gasoline is consumed in driving a given distance at 50 miles per hour (mph) than at 40 mph. In an investigation conducted by an insurance company, the cost of gasoline, oil, tires, and maintenance when driving at a speed of 55 mph was found to be over eight-tenths of a cent per mile more than when driving at a speed of 45 mph. A hundred mile trip driven at a speed of 55 mph cost 83 cents more than when driven at a speed of 45 mph. The time saved at the higher speed amounted to only 25 minutes, so that each minute that was saved cost over 3 cents in operating expense of the automobile.

Keep the car in good mechanical condition. The tires should be properly inflated, not only because underinflated tires wear quickly but also because they increase resistance of the wheels to rolling, which wastes gasoline.[2]

The carburetor and spark timing should be kept in adjustment by periodical attention from an expert. It is best always to use the same brand of gasoline for which the carburetor and spark timing were adjusted. If other brands have to be substituted, the gasoline used should be one having approximately the same octane number as that for which spark timing was adjusted.

The proper timing adjustment is one which makes the engine produce a slight ping as the throttle is opened wide with the car speed at about 10 mph, or when the motor is slowed down on a hard pull with the throttle almost fully open. The adjustment depends upon the octane number of the gasoline used. Octane numbers of third-structure gasolines recently have ranged from 50 to 70, of regular grade gasolines from 70 to 80 with most of them about 75, and of premium gasolines from 80 to 83. Under war conditions the octane numbers of some of the gasolines available to consumers are likely to be reduced. Consumers, therefore, in many instances will need to have the spark timing readjusted in order to compensate for the changes downward in anti-knock value of gasolines.

More Servicing and More Care Required in Future Use of Automobiles

Consumers should have in mind that in the war economy which is now developing there is going to be need for very much more frequent and more competent servicing of all kinds than hitherto, and especially does this apply to the automobile, where the effect of poor performance and inefficiency can no longer be dealt with as formerly by simply meeting somewhat higher bills for gasoline, oil, or tires. On the whole, the American consumer will benefit by experiencing the need for economy, by making economical rather than wasteful use of his many mechanical and electrical devices and appliances.

Americans have been guilty of what to Europeans has always seemed an atrocious disregard of ordinary means to economy and efficiency, perhaps because Americans felt their time was too valuable to warrant concerning themselves with saving of pennies. Now it is a question not of saving pennies but of deciding whether there will be gasoline or tire mileage available for civilian use at all, and in these circumstances an entirely different attitude of the consumer is to be expected and must be developed. Teachers,

[1] Ways to save gasoline, oil, and tires were discussed in CONSUMERS' RESEARCH BULLETIN, Oct. 1941.

[2] On good roads, tires may advantageously be overinflated 20%, that is, be inflated to a pressure 1/5 higher than normal (e. g., 36 lb per sq in. instead of 30 lb per sq in.).

particularly, will have a large responsibility in inculcating a changed state of mind on the part of young people toward materials and supplies hitherto plentiful but now quickly becoming scarce or unobtainable.

The Octane Numbers Starting Downward!

One of the more common bad habits of the American motorist has been to use in his car gasoline of higher price and higher octane number than was needed. It is not economical to use a high-priced gasoline having a high octane number, for the increase in mileage and power will be negligible over that obtained from gasoline of lower octane after the spark timing and the carburetor have been correctly adjusted. (This is, of course, contrary to much cleverly conceived publicity by gasoline refiners and processers, arguing for the opposite opinion.) The engines of a few of the latest cars, however, do require gasoline of high octane number.

Consumers' Research has for many years recommended regular and third-structure gasolines over premium gasolines for economy in general use and for satisfactorily serving every ultimate-consumer need for gasoline. This advice incidentally has recently been given publicity by the Office of Price Administration as a means of saving gasoline of high octane number for military uses. Observant consumers will have noted that such recommendations as this and another one making for economy in use of crankcase oil were not made by the government in normal times and as a service to ultimate consumers (for governments traditionally give little consideration to consumers as a whole as compared with such other groups in the population as labor and agriculture).

Ratings of Leaded Gasolines

In the past it has been CR's policy not to rate even the best of the leaded gasolines higher than B. Intermediate, since their use in general is not recommended, for reasons repeatedly set forth by CR. However, at the time samples were collected for these tests, non-leaded gasolines were found to be extremely difficult to purchase in some localities. Thus, to serve the needs of subscribers who are unable to obtain non-leaded gasolines, we have shown the best of the leaded gasolines as A. Recommended. Subscribers who can obtain non-leaded gasolines should continue to purchase those rated A or B, in preference to A. Recommended leaded gasolines. This situation will probably change, because it is likely that leaded gasoline for civilian use, due to the importance of its constituents for war purposes, will disappear from the market, or at least that the quantities available will be severely restricted.

The regions where the samples of gasoline were purchased for test are indicated in parentheses immediately after the brand names, i.e. (PC), sample bought on the Pacific Coast; (MW), Middle West; (SW), Southwest; (W), West; (E), East; (SE), Southeast. Numbers following the initials of the regions where samples were purchased are the octane numbers found in the test. The most outstanding faults are also noted in the listings.

Samples of One Lot, of Unusually High Grade

In working over the detailed analytical data on the gasolines for the purpose of rating the samples, it was noted that without exception every gasoline which was purchased for test in the vicinity of Washington, N. J., where Consumers' Research is located, fell within a remarkably small range of high values, values so high as to be without rival in any other group of samples. The Washington, N. J., samples fell within the narrow limits of 95 to 99 on a scale of one hundred. In another region, Louisiana, which was close to the average in general character, the range of values was much wider, being 80 to 98, and the average, 88, was nearer the lower limit, or some 10 points lower on the scale of one hundred than the Washington, N. J., samples.

Someone has suggested that the gasoline refiners have become remarkably consumer-conscious and have provided their distributors in the Washington, N. J., territory with gasoline of almost unprecedentedly uniform high quality. If this be so, it is a most compelling argument for testing consumers' goods, and shows the tremendous economies which may accrue to the consumer from only a modest expenditure for testing and studying a given variety of goods, provided the tests are made strictly from the consumer's point

of view. Certainly the remarkable qualities of gasolines sold hereabouts were a remarkable bit of coincidence with the work of Consumers' Research in this field of analysis, if not the exact result of it. We hope in a future test to be in a position to tell by special study of the findings, whether the Washington, N. J., region is indeed the particular darling of the gasoline refiners and their distribution systems.

Ratings are cr42.

Non-Leaded Gasolines

A. Recommended

Beacon Cracked (PC), 63.5.
General Metro (PC), 63.5.
Gilmore Blue Green (PC), 63.5.
Indian (PC), 63.
Norwalk Green Go (PC), 64. Tendency to crankcase dilution greater than average.
Norwalk "70" (PC), 71.
Pathfinder Courier (PC), 63.5.
Silver Shell (SE), 65.5.
Standard Flight (PC), 66.
Sunoco Nu-Blue (E), 74.5; (MW), 73.
White Magic (SW), 61; (PC), 64.

B. Intermediate

Associated White Gold (PC), 61.
El Tejon (PC), 62.5.
El Tejon Western (PC), 69. Corrosion tendency considerable. Below average in acceleration.
Flight (SW), 67.5.
Gulf Coast Anti-knock (SE), 60.
Gulf Traffic (SW), 59.
Mohawk Golden Arrow & "75" (PC), 61.5. Tendency to crankcase dilution greater than average.
Navy Road Runner & "68" (PC), 69. Below average in acceleration. Corrosion tendency considerable.
Navy "70" (PC), 62.5.
Richfield Flash (PC), 61. Tendency to crankcase dilution greater than average.
Seaside Grade (PC), 61.
Shell Green Streak (PC), 62.5.
Signal Peerless (PC), 61.
Sunland (PC), 62.
U. S. Motor Specification (Sinclair Refining Co., Inc.) (SE), 62.

C. Not Recommended

Demand (SW), 52.
Derby (MW), 50. Considerably below average in ease of starting.
Derby (W), 50.
Flight (W), 57. Considerably below average in ease of starting.
Green Streak (SW), 62. Below average in ease of starting and in acceleration.
Hiotane (SE), 57.
Indian (SW), 52.
Indian (W), 55. Considerably below average in ease of starting.
Mohawk Majorette (PC), 61.5. Below average in acceleration. Tendency to crankcase dilution and corrosion tendency, both greater than average.
Pacific States Paco (PC), 65. Corrosion tendency considerable.
Powermax (MW), 52. Considerably below average in ease of starting.
Royal (MW), 50. Considerably below average in ease of starting.
Stanolind (W), 57. Considerably below average in ease of starting.
Tidex (W), 50. Considerably below average in ease of starting.
U. S. Motor Specification (Sinclair Refining Co., Inc.) (W), 54 Considerably below average in ease of starting. Below average in acceleration.
Unique (SE), 55.

Leaded Gasolines

A. Recommended

American Orange (E), 73.5.
Associated Flying "A" (PC), 76.5.
Atlantic White Flash (E), 75.
Barnsdall B Square (MW), 73.
Beacon Security (PC), 76.
Champlin (W), 72.5.
Cities Service Mileage (E), 74.5.
Cities Service Motor (SE), 70.
Demand (MW), 65.5.
Eagle Super (PC), 76.
El Tejon "74" (PC), 74.5.
Esso (E), 76.5.
General Mobilgas (PC), 77.5.
Gilmore Red Lion (PC), 76.
Gulf Traffic (SE), 71.
Hancock Ecolene (PC), 66. Below average in acceleration.
Hancock Five Point (PC), 74.5.
Mohawk Super (PC), 74.5.
Moto-Zip (SE), 65.5.
Navy Admiral (PC), 74.5.
Norwalk Streamline (PC), 78.
Pacific States "GG81" (PC), 74.5.
Pan-Am Economy (SE), 71.5.
Pathfinder Pioneer (PC), 75.3.
Pathfinder Scout (PC), 71.
Petrol "P.D.Q." (PC), 79.
Petrol "3 Star" (PC), 72.5.
Richfield Hi-Octane (E), 75; (PC), 76.
Seaside Silver Gull (PC), 76.5.
Shell (E), 74.
Shell Super (PC), 76.5.
Signal (PC), 76.5.
Sinclair H-C (E), 74.
Speedway "79" (MW), 75.5.
Spur (E), 75.5.
Standard (SE), 70.5; (PC), 76.5.
Standard Crown (SE), 75.
Sunland "H-O" (PC), 76.7.
Super Shell (MW), 73.
Texaco Fire Chief (E), 76; (PC), 76.
Tydol A (E), 77.
Union "76" (PC), 76.5.

[Completed on page 19]

Winter Oils

QUALITY OF MOTOR OIL is never to be measured by the price charged for it; nor can it be measured by the advertising claims made for it. The consumer can pay anywhere from 17 to 35 cents a quart for motor oil, and the oil may be good or bad depending upon the brand he chooses. Among oils proven satisfactory according to CR's tests, it is possible to choose a low-priced one which will be just as good for his car as a high-priced one.

In the oil industry as in many another, a clever writer in an ad-agency will promote a claim, however irrelevant, merely to make one product seem somehow different from others with which it competes. With automobile oils it may be a claim for "greater hill-climbing ability," a "special oil for stop-and-go driving," or for "quicker acceleration." Such claims should not be taken seriously by the consumer, for the real differences between good oils—and there are many good motor oils—are insignificant except to an adman's fancy. Advertising claims for oils, the consumer must note, are matters of words chosen by admen, not of real significant physical properties found and verified in the laboratory.

The most important difference between motor oils occurs in the property called "viscosity index." The viscosity index should be high; a high viscosity index means that the ability of the oil to pour or flow is relatively little affected by changes in temperature. An ideal oil would flow as easily at low temperatures as at high, so that the automobile could be started readily in cold weather without putting an extra burden on the starter motor and battery. (Actually the best oils made are far from ideal.) A good oil should not become too thin when the engine has attained its operating temperatures, for too thin an oil is not fully safe as a lubricant under heavy climbing and fast driving conditions. Viscosity index—though it is of greatest significance, probably, of all factors related to automobile oil—is nevertheless seldom if ever mentioned in advertisements of motor oils. This is simply for the reason that since an understanding of the meaning of the viscosity-temperature relation would make some demands upon the reader's attention and memory, this important concept does not lend itself as well as other things that can be said about oil, to attractive and easy dramatization and imagery.

Technical experts of certain oil companies have at various times taken issue with CR, maintaining that our reports on automobile oils were inconclusive because they were based primarily on determinations of the viscosity index. Such critics held that other factors, particularly the carbon residue determination, which is intended to measure the tendency of the oil to deposit carbon in the combustion chambers of the engine, were also important and should be included in our test. There could be no doubt that carbon residue, sulphur content, and the acid content of automobile oils were significant, but as a practical matter, it was judged needless to make the expenditure to test oils of well-

WINTER GASOLINES

[Continued from page 18]

B. Intermediate

Douglas Aviation Tested (PC), 76.3. Corrosion tendency considerable.

Douglas Spitfire (PC), 64. Below average in acceleration.

Five C "Leaded Super" (PC), 70. Corrosion tendency considerable.

Flash (SW), 71. Tendency to corrosion greater than average.

Wilshire Economy (PC), 72.7. Corrosion tendency considerable.

Wilshire Polly (PC), 76.5. Corrosion tendency considerable.

Wilshire Radio (PC), 70.

C. Not Recommended

Eagle (PC), 69. Gum content high.

Indian (MW), 64. Considerably below average in ease of starting.

Jenny (E), 74. Considerably below average in ease of starting.

Stanolind (MW), 64. Considerably below average in ease of starting. Below average in acceleration.

known brands for these properties. (In recent years oil-refining technique has so improved that oils of reputable refiners are regarded as satisfactory in these respects.) However, to remove possible doubts on this question, CR had the Conradson carbon-residue test applied to the oils listed in this report. It was found that practically all of the oils included in the test fell within the limits of Navy or of Federal Specifications for the permitted percentage of carbon residue, and many of the oils so far bettered the permitted limit as to fall in a superior group, known in the Federal Specifications as "special credit" oils. As far as the other characteristics (sulphur and acid contents) were concerned, it was deemed certainly unnecessary to test for these, for hundreds of reports made by state government laboratories have been examined and these have consistently shown not a single oil unsatisfactory in these respects among hundreds of samples tested.

Ratings of the following oils by Consumers' Research are based upon three factors: correct labeling of the oil as to S.A.E. number; favorable (high) viscosity index; and low (percentage) carbon residue. Marked deviation below the normal in either of the first two factors is noted in the listings. The prices given are per quart unless otherwise noted, and include the state tax where levied. The regions where the samples were purchased are indicated in parentheses immediately after the brand names, i.e. (PC), sample bought on the Pacific Coast; (SW), Southwest; (W), West; (MW), Middle West; (E), East. Tests of oils from states in the Southeast, and additional samples from the East, were not completed at the time of going to press. The results of these tests will be issued in a forthcoming BULLETIN.

Ratings are cr42.

10 or 10W Oils

A. Recommended

Bureau-Penn (E) (Distrib. United Co-operatives, Inc., Indianapolis) 23.8c; 2-gal can, $1.90.
Champlin De Luxe (W) (Champlin Refining Co.) 30c.
Cities Service (W) (Cities Service Oil Co.) 26c.
Conoco Nth (W) (Continental Oil Co.) 31c.
Cross Country (E) (Sears-Roebuck's No. 28—4501) 20c plus postage; 10-qt can, $1.65 plus postage. Sold also as *Penn-Medal.* (Note *B* rating of sample under "20-20W Oils.")
Golden Shell (E) (Shell Oil Co.) 25c. (Note *B* rating of Southwestern sample under "20-20W Oils," and *C* rating of Pacific Coast sample under "30 Oils.")
Gulflube (E) (Gulf Oil Corp.) 25c.
Kendall (E) 30c; (W) (MW), 36c (The Kendall Refining Co.)
Koolmotor (MW) (Cities Service Oil Co.) 38c.
Lubrite (E) (Socony-Vacuum Oil Co., Inc.) 25c.
Pennzoil (E) 30c; (MW), 36c. (The Pennzoil Co.)
Quaker State (E) (Quaker State Oil Refining Corp.) 30c.
RPM (W) (The California Co., San Francisco) 31c.
Sinclair Opaline (W) (Sinclair Refining Co., Inc.) 26c.
Sinclair Pennsylvania (E) (Sinclair Refining Co., Inc.) 30c.
Skelly Tagolene (W) (Skelly Oil Co.) 26c.
Texaco Insulated (E), 25c; (W), 26c (The Texas Co.)
Tydol (E) (Tide Water Associated Oil Co.) 25c.
Veedol (W) (Tide Water Associated Oil Co.) 30c.
Wards Supreme Quality (E) (Montgomery Ward's No. 61—7355) 20c plus postage; 2-gal can, $1.32 plus postage.

B. Intermediate

Cities Service (E) (Cities Service Oil Co.) 25c.
Golden Spur (E) (Spur Distributing Co., Inc.) 25c. Misbranded as to S.A.E. viscosity.
Mobiloil-Arctic Special (W) 26c. (MW) 36c. (Socony Vacuum Oil Co., Inc.)

20 or 20W Oils

A. Recommended

Conoco Germ Processed (SW) (Continental Oil Co.) 30c.
Gulflube (W) (Gulf Oil Corp.) 25c.
Havoline Insulated (SW) (Indian Refining Co.) 31c.
Iso-Vis (MW) (Standard Oil Co.) 30c.
RPM (SW) (Standard Oil Co. of Calif.) 30c.
Texaco (SW) (The Texas Co.) 25c.
Wards Supreme Quality (E) (Montgomery Ward's No. 61—7355) 20c plus postage; 2-gal can, $1.32 plus postage.

B. Intermediate

Cross Country (E) (Sears-Roebuck's No. 28—4502) 20c plus postage; 10-qt can, $1.65 plus postage. Sold also as *Penn-Medal.*
Golden Shell (SW) (Shell Oil Co.) 25c. Sold in bulk.
Sinclair Opaline (E) (MW) (Sinclair Refining Co., Inc.) 25c.
Texaco Insulated (MW) (The Texas Co.) 25c.

C. Not Recommended

Silver Shell (MW) (Shell Oil Co.) 16c. Sold in bulk. Misbranded as to S.A.E. viscosity.

30 Oils

A. Recommended

Conoco Nth (PC) (Continental Oil Co.) 31c.
Havoline (PC) (Indian Refining Co.) 31c.
Lion Head (PC) (Gilmore Oil Co.) 31c.

B. Intermediate

Quaker State (PC) (Quaker State Oil Refining Corp.) 36c.
Sta-Lube (PC) (Laird Inc.) 36c.

[Completed on page 21]

Gasoline Consumption of Some Popular 1942 Cars

THIS COUNTRY has passed through an era in which the number of miles per gallon of gasoline delivered by their car seemed to many people to be a matter of minor importance. Now that our country is at war, consumers had better assume that "them days are gone," if not forever, at least for the duration. If gasoline is rationed, the owners of cars giving the most economical transportation should be in the most favorable position (at least they will if the rationing program is on a gallonage basis and not contrived to take account of individual cars' and drivers' fuel requirements). This situation might lay the foundation for a slogan such as, "What this country needs is a good 50-mpg car." If such a slogan should become popular we hope the automobile manufacturers will give close heed to the public call, as public demand has forced them to do in European countries, where gasoline supplies are not so scarce and dear.

The Dartnell Corporation, 4660 Ravenswood Ave., Chicago, book and magazine publishers, has recently issued a report on automobile fleet management and operation entitled "Business Car Expense Control." While this report is primarily intended for firms or organizations operating a number of cars, it contains in addition certain information of interest to ultimate consumers, which is discussed briefly below, by special permission of The Dartnell Corporation. These figures are based on the records of over fifty companies operating more than 11,500 cars (of which 10,814 were distributed among *Chevrolets, Studebaker Champions, Fords*, and *Plymouths*), traveling over a total distance of approximately 256 million miles. It is significant to note that the four economy cars, *Chevrolet, Studebaker Champion, Ford*, and *Plymouth*, were specifically reported upon at the request of Dartnell subscribers, all other cars than those of this group being classed together under the title "all others." This indicates that fleet operators, who are always interested in **transportation,** on the most economical basis, good appearance and convenience considered, make their choice from among the four cars mentioned. Such a choice is, of course, consistent with advice that has long been given to the readers of CONSUMERS' RESEARCH BULLETINS.

The following figures are taken from the Dartnell report:

	Miles per Gal. of Gasoline	Miles per Quart of Oil	Operating Cost per Mile
Studebaker Champion	17.3	285	1.87c
Ford	17.3	203	2.08c
Chevrolet	15.9	212	2.05c
Plymouth	15.8	241	2.13c

The figures in the column showing operating cost per mile include gasoline, oil, lubrication, tires and tire repairs, car repairs, and miscellaneous operating expenses; they do not include depreciation, license and taxes, or other fixed charges. The costs for repairs were found to run approximately uniform for the four different makes, a fact which is very important for the consumer to keep in mind; many consumers have wondered whether there might be important differences between the four makes in respect to costs of keeping a car in repair after purchase.

* * *

As economy in materials and labor is to be our country's watchword, for the near future, certainly, the tests this year were

WINTER OILS

[Continued from page 20]

C. Not Recommended

Golden Shell (PC) (Shell Oil Co.) 26c. Viscosity index, low.

Lubrite (PC) (General Petroleum Corp. of Calif.) 26c. Sold in bulk. Misbranded as to S.A.E. viscosity.

MacMillan Ring Free (PC) (MacMillan Petroleum Corp.) 36c. Viscosity index, low.

Signal Hiway (PC) (Signal Oil Co.) 16c. Viscosity index, low.

Zerolene, No. 5 (PC) (Standard Oil Co.) 16c. Sold in bulk. Viscosity index, low.

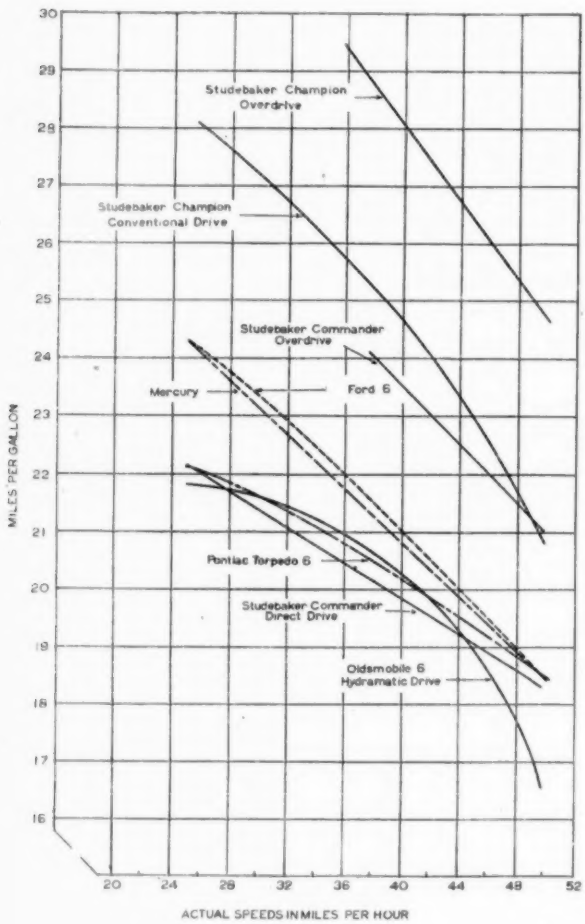


Fig. 1—1942 Automobiles

Graph showing relation between speed of the car in miles per hour and gasoline economy in miles per gallon of six 1942-model automobiles, including two with overdrive and one (the *Oldsmobile 6*) with fluid drive and automatic transmission.

arranged to include certain cars not hitherto mileage-tested by CR, in order to give subscribers an opportunity to see gasoline-mileage data on several additional makes of cars. Four makes that had previously been tested for gasoline mileage—*Ford V-8*, *Chevrolet*, *Nash 600*, and *Plymouth*—were not tested this year, as there was reason to believe that the differences between the 1942 and 1941 models of these cars were such as not to affect to any practically important degree their performance as to miles per gallon of gasoline. However, for the convenience of our subscribers the results obtained on these 1941 models are given in the table and also in a separate chart.

In addition to the standard *Mercury* car, a model of the same make equipped with fluid coupling was scheduled to be included in these tests, but as it had not been received at the time the ban on the sale of new cars to the general public went into effect, the possibility of obtaining a model for test is remote at this writing.

The following 1942 cars have to date been given gasoline mileage tests:

Ford 6	with 3.78 rear axle ratio
Mercury	with 3.54 rear axle ratio
Pontiac Torpedo 6	with 4.1 rear axle
Studebaker Champion	with 4.1 rear axle and Overdrive
Studebaker Commander 6	with 4.1 rear axle and Overdrive
Oldsmobile 6-Sixty-Six	with 3.42 rear axle and Hydra-Matic Transmission

Test Procedure

The cars were obtained for the tests through the courtesy of New York distributors, who were fully informed of the circumstances of the tests and were given an opportunity to put each car to be tested in the best possible adjustment, to give maximum gasoline economy. Under such conditions, the results of these tests should permit the establishment of a norm or standard which the individual owner of a similar car can use as a guide to determine whether his car is adjusted to something near its maximum economy of operation. Without such a guide, the consumer has only a vague or ill-defined idea as to the sort of mileage performance that can reasonably be expected from his car. He is thus forced to take the word of the dealer that it is adjusted as well as it can be, when such may not be even approximately true.

Upon receiving each car from the distributor, it was given (with one exception, the *Studebaker Champion*) a preliminary run at approximately 37 miles per hour. Following this, it was taken to a chassis dynamometer[1] operated by the Gulf Oil Corporation for the standard dynamometer test.

The car, with the findings from the dynamometer tests, was then taken to the manu-

[1] The chassis dynamometer is a special and rather elaborate mechanical installation which permits accurate determinations of pulling power at rear wheels at different throttle openings and at several speeds. It also permits checking the accuracy of speedometer and brake adjustment. Use of such special equipment is indispensable in any case where an exact rather than a crudely approximate setting of carburetion and ignition is necessary.

facturer's service station, and the station manager was requested to make such changes and adjustments as would provide, in his opinion, satisfactory and favorable operation and economy. The changes that were made are noted hereafter.

The gasoline consumption of the cars was determined at nominal speeds of 25, 37, and 50 miles per hour, over a course approximately ten miles in length in rolling country and under exceptionally uniform and favorable road conditions. Four runs (two in each direction) were made at each speed. All the runs were made from a standing start in order to obtain conditions simulating normal car use. A specially constructed device was used to permit accurate measurement of the volume of gasoline consumed. An unleaded gasoline having octane qualities which were satisfactory for the purposes of the test, *Nu-Blue Sunoco*, was used throughout the test. S.A.E. 10W oil was used in all cars except *Studebaker Commander*, which used S.A.E.20.

Adjustments

The following adjustments were made after the dynamometer tests and preliminary run:

Ford 6: The float level of the carburetor was set down somewhat. The test engineer's opinion was that installation of jets one size smaller would have increased mileage about 4%.

Oldsmobile 6-Sixty-Six: Preliminary figures indicated carburetor setting to be slightly rich, but the Oldsmobile service station manager stated that no changes in adjustment were advisable.

Pontiac Torpedo 6: Carburetor on this car was found to be set somewhat rich, and a larger metering rod which reduced the size of the jet was installed. A change of the spark adjustment was also made.

Studebaker Champion: This car was not given car dynamometer tests, as the company stated that it was standard in every respect and preferred not to make any adjustments.

Studebaker Commander: No changes or adjustments found to be necessary.

Mercury: No changes or adjustments found to be necessary.

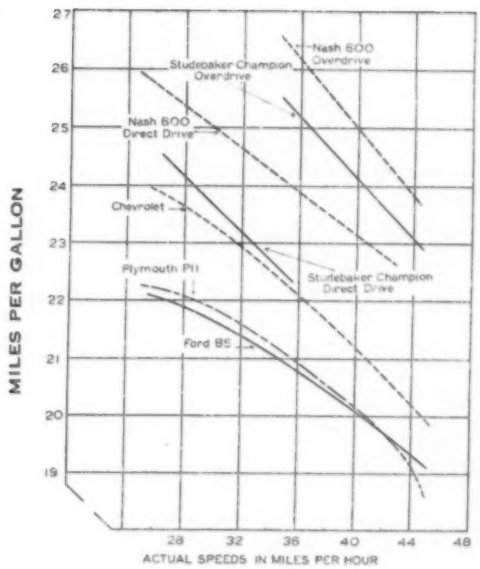


Fig. 2—1941 Automobiles

Relationship between speed and miles per gallon of five 1941-model automobiles tested, four of which were models not included in the 1942 series of gasoline mileage tests.

Miles per Gallon of Gasoline at Nominal Speeds Shown

Car	25 mph	37 mph	50 mph
1942 Models			
Studebaker Champion	28.1	25.51 (29.49)*	20.83 (24.64)*
Studebaker Commander	22.12	20.4 (24.15)*	18.31 (21.06)*
Ford 6	24.3	21.65	18.48
Mercury	24.3	21.3	18.6
Pontiac Torpedo 6	22.14	20.52	18.43
Oldsmobile 6-Sixty-Six	21.83	20.79	16.53
Car	**25 mph**	**35 mph**	**45 mph**
1941 Models			
Nash 600 De Luxe	25.9	24.1 (26.6)*	22.6 (23.7)*
Chevrolet Master De Luxe	24.0	22.2	19.9
Plymouth P 11	22.4	21.1	18.6
Ford V-8 85 De Luxe (3.78 axle)	22.1	20.9	19.1
Studebaker Champion	24.6	22.4 (25.5)*	— (22.9)*[2]

* Figures in parentheses are those obtained with overdrive in operation.

[2] Note that the 1942 model showed mileage per gallon performance considerably better than that given by the 1941 model, a difference particularly noticeable at the lower speeds.

It is important to note that gasoline-consumption figures are based on the **actual** miles run and actual speeds obtaining during the tests, and not on the speedometer and odometer readings, which are not as a rule sufficiently accurate for test work.

The inaccuracies found in these instruments are listed in the following table. A

[Completed on page 24, column 1]

Gas Burners

GAS is easily the most convenient, clean, and adaptable fuel for heating, but its high cost has prevented its extensive use, except in certain rather large territories where natural gas is in common use and distributed cheaply for home cooking and heating. Because of its high price it is usually important, when gas is burned for heating, to save fuel by having the house insulated and equipped with storm windows and doors. Moreover, the gas burners should be of good design, installed in efficient heating equipment.

Consumers should note that owing to use of natural gas in war industries a shortage of natural gas in nine states has recently been announced.

Gas is an extremely dangerous substance. It should be burned only in equipment bearing the seal of approval of the American Gas Association (A.G.A.). House-heating equipment approved by A.G.A. will be equipped with certain necessary safety devices to reduce dangers of explosions, and will comply with minimum requirements of efficiency.

Most gas burners are of the "atmospheric type," taking air for mixing-in without mechanical auxiliaries; they are thus similar to the burners used on gas ranges. A second type is the forced-draft burner. With this type a motor-driven blower is used to provide the air necessary for combustion. The forced-draft burners give slightly higher efficiencies but these rarely justify the added expense and complexity of a motor-driven blower. Excellent burners of the first or atmospheric type are available for house heating.

Due to the low temperatures obtained in the chimney when gas heat is applied in highly efficient boilers there is a possibility that water vapor in the stack gases will be cooled below its condensation temperature and deposit on the walls of the chimney. The condensed moisture contains small amounts of acid. If the chimney is not tight, the liquid may leak through the chimney walls and discolor the interior walls; it is likely of course to corrode the smoke pipe, more so than occurs with other fuels, as a rule. This is most likely to happen when the chimney is exposed to the weather, and so kept cool or cold and also during a prolonged cold spell. A tile lining inside the chimney will help greatly to prevent this trouble.

Most city gas companies provide free service for gas burners installed for house heating, and standards of safety have been set up by the trade association of these companies. Installation is usually satisfactory.

A draft-hood, or down-draft diverter (essentially a break in the smoke-pipe) is always necessary with an atmospheric burner. See illustration.

Gasoline Consumption of 1942 Cars

[Continued from page 23]

plus sign indicates that the reading was higher than actual, and a minus sign that it was lower than actual. Note the predominance of plus errors; plus errors are usual on speedometers, not uncommon on odometers.

Car	Speedometer 25 mph	Speedometer 50 mph	Odometer
Ford 6	Correct		+3%
Mercury	Correct		+1%
Pontiac Torpedo 6	+3½%	+3½%	+2%
Studebaker Champion	Not Tested		−1%
Studebaker Commander	+2%	+7%	Correct
Oldsmobile 6-Sixty-Six	Correct	+3%	+3%

Oil Consumption

Oil-consumption tests were not carried out, for two reasons: (1) time was not available for running up sufficient mileage to produce a result considered representative; (2) in general, oil consumption, particularly with a new car, is more likely than are some of the other elements of operation of a car, to show a considerable variation from the usual or average figure.

Gas Conversion Burners

A. Recommended

Bryant, Model 95 (The Bryant Heater Co., Cleveland) **1**

Handley Brown, Series "R" (Handley Brown Heater Co., Jackson, Mich.) **1**

American Gas Convertor (American Radiator & Standard Sanitary Corp., New York City) For round boilers only. When installed in *Arco* Round Boilers,

it is recommended that a special flue baffle be bought and installed at same time. **2**

Barber, Series B (The Barber Gas Burner Co., Cleveland) **2**

Columbia Nutipe (Columbia Burner Co., Toledo, Ohio) **2**

Roberts-Gordon, Series 84 (Roberts-Gordon Appliance Corp., Buffalo) **2**

B. Intermediate

Barber, Series A (Barber Gas Burner Co.) Used same burner nozzles as series "B" but substituted an inferior magnetic gas valve and lacked draft-door control. **1**

Roberts-Gordon, Series 302-X (Roberts-Gordon Appliance Corp.) **1**

Janitrol, Series J (Surface Combustion Corp., Toledo, Ohio) **2**

Johnson Heat-flo (Johnson Gas Appliance Co., Cedar Rapids, Iowa) **2**

Republic, Series "2" (Autogas Company, Chicago) **2**

C. Not Recommended

Roberts-Gordon, Series 400 (Roberts-Gordon Appliance Corp.) **1**

Combination Boiler-Burner Units and Boilers for Use with Gas as a Fuel

Down-draft boilers are generally not suitable for use with gas.

A. Recommended

Bryan (Bryan Steam Corp., Peru, Ind.) Very efficient copper-tube boiler.

Bryant, Models 23 and 25 Series (The Bryant Heater Co., Cleveland) Complete boiler-burner units.

Burnham-Simplex (Burnham Boiler Corp., Irvington, N.Y.) Complete boiler-burner unit, using cast-iron boiler.

Empire and *Standard* (American Radiator & Standard Sanitary Corp., N.Y.C.) Complete units. Efficient cast-iron boilers well suited to raised-port, cast-iron burners. *Empire* had fancier jacket but otherwise same as *Standard*, which was $22 cheaper.

General Electric, Type LM (General Electric Co., Bloomfield, N.J.) Complete unit, using cast-iron boiler.

Janitrol Gas Boiler (Surface Combustion Corp., Toledo, Ohio) Complete unit, using cast-iron boiler. (Same as *National* Gas Boiler, listed below.)

National Gas Boiler (The National Radiator Co., Johnstown, Pa.) Complete unit, using cast-iron boiler.

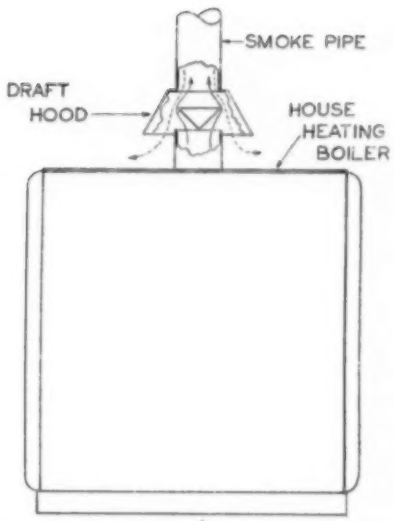
Richmond, Types WFD and SD (Richmond Radiator Co., Inc., Uniontown, Pa.) Complete unit, using cast-iron boiler.

B. Intermediate

Airtemp (Airtemp Div., Chrysler Corp., Dayton, Ohio) Complete unit, using cast-iron boiler.

Burnham, Type "R" (Burnham Boiler Corp., Irvington, N.Y.) Steel boiler.

Capitol, Series A and AE (United States Radiator Corp., Detroit) Complete unit, using cast-iron boiler.



Draft Hood or Down-Draft Diverter, for Use with Gas Burners

Solid arrows within the draft hood indicate the normal course of the flue gases from the boiler. The course of a down draft, which can occur at times as on windy days, is indicated by the broken arrows. A puff of wind blowing down the chimney is by this device prevented from interfering with the process of combustion in the furnace. The draft hood also reduces the draft through the boiler to a desirable minimum, by allowing air from the basement to pass into the smoke pipe.

Fitzgibbons, Series 80 and 400 (Fitzgibbons Boiler Co., N.Y.C.) Steel boilers.

Heggie Simplex (Lookout Boiler & Mfg. Co., Chattanooga, Tenn.) Steel boiler.

Pierce Eastwood (Pierce Butler Radiator Corp., Syracuse, N.Y.) Cast-iron boiler.

Off The Editor's Chest

[Continued from page 2]

an extent which amounts to an almost total ignoring of the fundamental place and importance of the natural sciences and mechanic arts and skills.

Another weakness of the professional educator has been his failure to realize that we cannot possibly build a competent, **producing** America on the foundations that will be laid by persons who look upon education as **a profession thinking and standing apart from the sciences and disciplines and the technical, fine, and liberal arts that constitute the** SUBJECT MATTER **of teaching.**

The Review already cited refers to the "increased pedagogical emphasis, scrambling, and emasculation" of education in the sciences and says that further accentuation of these "would constitute the final blot in this history of human

[Completed on page 26]

Off The Editor's Chest

[Continued from page 25]

error." The absurdity of the position of the "soft education" system of teaching favored in certain prominent teacher-training institutions (in the East, especially) is seen at once if one tries to imagine a physician who has learned "how to teach" the art and science of medicine but does not know how to treat a skull fracture or a torn sinew, or an engineer who can lay out a college curriculum but would be wholly at a loss to measure the stress in a bridge girder or correctly apply a thermoelectric pyrometer to measurement of a high furnace temperature.

The high school or college teacher whose interest is all in "educational method" and who has no deep professional feeling for the intellectual and laboratory and drafting office content of algebra, geometry, physics, chemistry, electrical measurements, or radio, will never train young people able to take on, as experience ripens, adult, functioning jobs, such as managing a power-station or factory maintenance department, navigating a ship, or organizing a civilian or military communications-center. In these times, sound workmanship, and applied science and invention are paramount, and ability of some hundreds of thousands of men and women to function with brains and initiative in those fields determines national competence—not mere millions of young people "graduated" from school and college.

In the last analysis, national efficiency must depend on competence at a trade or profession, and national unity upon the public recognition that such competence exists at all places where it is critically needed. Competence consists in being able to carry out responsibly and dependably a job in which one has received specialized training. For an engineer it may involve the training and assigning of men, devising and coordinating machines to make a weapon or instrument, or conducting an efficiency test of a heating boiler, a drill-press, or a fire engine. It will not consist in mere readiness to develop a "unit" or a project for classes of high school boys and girls on the desirability of more boilers or more and better machine tools, or the "social significance" of electric power lines or of prefabricated dwellings.

Every sort of genuine skill and competence will now be at a premium in a world dominated by machines, and, for the moment, by the machines and munitions of war. In that kind of world, that country is most ready and best qualified to meet emergencies which has graduated the largest number of young people from technical and business-training schools and colleges, equipped with the hard-won knowledge of mathematics, physics, chemistry, and the other applied sciences and technologies applicable to industrial and military uses. For most young people, the only way in which this knowledge and skill can be acquired will be from teachers who are versed **in the subject matter of those arts and sciences,** who have worked at them intensively in the shop and laboratory or study—or who have, if possible, written books and papers on them, made hobbies of them for their spare time.

Every parent who wants his son or daughter to be able to fill an adult's place in the modern world must see for himself what kind of education that son or daughter is receiving in the secondary school or college. If it is "soft education," the proper authorities should be set to work on the problem of making prompt and effective changes in the method and details of teaching. Are the pupils learning to write and speak French or Spanish, or are they being entertained with an unusable smattering of the language? Are they learning analytical geometry, or only taking a vague course in "general mathematical principles" which involves the least possible drudgery of problem-solving? Do the home economic students **know** something about the basic principles of nutrition? (84% of women interviewed in a Gallup survey did not show even a faint understanding of the difference between vitamins and calories!) Are the students being taught physics as the science which enables them to compute output and efficiency of a motor-driven water pump, or only as a mere minor, oversimplified, and popularized part of a course in "general science"? (From such a course no one can learn even **what** scientists work at, much less the rigorous requirements of their training and the methods of their use of instruments and mathematical principles.)

There is no more important question today before American parents, educators, and scientists. **Don't** leave the problem to "the government." It must be worked at in **your** community and in **your** schools. The problem of restoring teaching to a subject-matter or content basis will not wait. In seeking to bring about the restoration of the old system of education by hard work, repetition, assiduous drill, competitive grades, laboratory work, and problem-solving, go for advice to those who are in responsible positions and active practice in business or the professions. In these times, responsibility for the essential work to be done will inevitably be placed on those who can design, make, build, test, transport, assemble, direct the work of men and machines. It is the **doers** who will now count for most in safeguarding and extending national safety and welfare. F.J.S.

CONSUMERS' DIGEST

The enlightened consumer is a necessary encouragement to merchandising integrity.

In the Groove

With Ratings of Phonograph Records

By

WALTER F. GRUENINGER

Music on Records, by B. H. Haggin. Alfred A. Knopf. 245 pages. $2.

A Guide to Recorded Music, by Irving Kolodin. Doubleday Doran. 495 pages. $3.

The Record Book Supplement, by David Hall. Smith & Durrell. 107 pages. $1.

The Opera, by Wallace Brockway and Herbert Weinstock. Simon & Schuster. 603 pages. $3.75.

Music as a Hobby, by Fred B. Barton. Harper & Brothers. 157 pages. $2.

Publicity is Broccoli, by Constance Hope. Bobbs Merrill. 264 pages. $2.

Six books recently published include pertinent observations for record buyers.

Two of them, B. H. Haggin's "Music on Records" and Irving Kolodin's "A Guide to Recorded Music," should prove particularly helpful to those who are building a library of classical recorded music.

In the first section of his book, B. H. Haggin discusses the relative importance of various compositions and composers as he sees them; in the second section he rates recorded performances. Unfortunately, at times he gives no clue to the fidelity of the recording but merely evaluates interpretation. Some of the standard works, such as Grieg's *Piano Concerto*, are missing, too. The emphasis falls not on single records but on sets of music of the sort known to the average man as "high-brow." There is, also, a chapter on jazz and one on phonographs, needles, care of records.

In "A Guide to Recorded Music," Irving Kolodin is not concerned with a critical evaluation of music but in providing a "personalized commentary on all consequential recordings of serious music available in American catalogues," principally Victor, Columbia, and Decca. His book covers more ground than Haggin's—over 5,000 recordings—and includes hundreds of single discs and the standard classics. For every item listed, you will find his opinion of recording fidelity and interpretive quality. When more than one recording of the same selection is available—he lists seven domestic recordings of Beethoven's *Symphony No. 5*, for example—he comments on the merits and shortcomings of each. If you know what music you want, Kolodin's book will help you find the recording which offers top value to the expert listener.

David Hall's "Record Book Supplement" brings up to date his earlier encyclopedic "Record Book" by evaluating music, performance, and fidelity of classical records released, principally, in the past year or so.

"The Opera," by Wallace Brockway and Herbert Weinstock, I recommend as a reference book for the collector of operatic records. The authors present an engaging history of the opera as they see it, fascinating anecdotes, and pertinent comment on historic performances. Names like Destinn, Caruso, Amato, Cavalieri, Scotti, Alda frequently crop up to fascinate the collector of records of the pre-electric-recording days. Furthermore, George Clark Leslie lists 72 pages of the best recorded performances of operatic selections.

"Music as a Hobby," by Fred B. Barton, tells the layman how to have fun with music. In a chapter on the phonograph, Mr. Barton advises against buying a record library ready made: select your pieces carefully and let each one mean something to you. Sound advice—as are his observations that you will increase your enjoyment if you listen with a group of friends; that for more realism (if you have a high fidelity machine and live in reasonable isolation from the next family)

turn up the volume even if it drives you into the next room; that repeated playings of a few good selections until you know them inside and out, pays dividends in pleasure.

Constance Hope's breezy "Publicity is Broccoli" has little reference value, but it shows to what extent musicians and records rely on publicity for getting the consumer to part with his money. Miss Hope reveals her methods for publicizing Melchior, Lehmann, Bruno Walter, Ormandy, Heifetz, Pons, Stokowski-Victor tours, Columbia Records, to say nothing of a string of restaurants, hat shops, and dress designers.

Today's record business, she writes, is "high speed. . .it calls for terrific promotion." This week it may be a rumba album by Xavier Cugat with a Pan American good-will tie-up, the next a sparkling collection of Eddie Duchin's piano interpretations. Each must be exploited as well and as fast as possible. When Kostelanetz recorded music of Stephen Foster, she arranged to have the maestro present the first album to Suzanna Foster, direct descendant of Stephen. George Gershwin's mother received the first copy of *Rhapsody in Blue*. Sibelius' *Second Symphony* album was presented to the Finnish minister as a birthday gift to Sibelius. On his birthday Mayor La Guardia was serenaded by Barbirolli and Benny Goodman, and an album of recordings was presented—and photographs turned up in the papers! The press is always notified, you may be sure.

The Stokowski-Victor tour in 1936, which Miss Hope publicized, called for an investment by Victor up to $200,000, to boost record sales. More than 80% of the press releases on the tour contained the magic word "records," she tells us. (The right word in the text means a lot to publicity men and women.)

Ratings of Phonograph Records

List Prices Are Given Exclusive of Tax

Key: AA—highly recommended; A—recommended; B—intermediate; C—not recommended.

	Quality of Music	*Interpretation*	*Fidelity of Recording*
ORCHESTRA			
Chabrier: *Espana.* London Phil. Orch. under Beecham. 2 sides, Columbia 71250. $1.	A	AA	AA
Debussy: *Clair de Lune & La Fille Aux Cheveux de Lin.* Decca Salon Orch. under Horlick. 2 sides, Decca 18177. 50c.	A	A	A
Dukas: *Sorcerer's Apprentice.* Anonymous Symphony Orch. 4 sides, Masterpiece A28. 67c. Musicians and novice listeners thoroughly enjoy this orchestral scherzo which Mickey Mouse mimed in "Fantasia." Unfortunately it is here inconveniently recorded on 4 short 10-inch sides.	A	A	A
Dvorák: *Slavonic Dances 1 & 3.* Minneapolis Symph. Orch. under Mitropoulos. 2 sides, Columbia 11645. $1.	A	B	B
Franck: *Symphony in D Minor.* Each set, 10 sides, $5.50.			
London Phil. Orch. under Beecham. Columbia M479.	AA	A	A
San Francisco Symph. Orch. under Monteux. Victor M840.	AA	AA	AA
Monteux captures the spirit of Franck perfectly. Beecham's glowing interpretation runs second of the now five catalogued recordings of this masterwork.			
Lange: *The Fisherman and His Soul.* Compinsky Chamber Orch. 6 sides, Co-Art M3. $4. Melodious, somewhat monotonous, atmospheric music inspired by Oscar Wilde's fairy tale. Unusually clear, spacious recording.	B	AA	AA
Liszt: *Hungarian Rhapsody No. 2.* All American Orch. under Stokowski. 2 sides, Columbia 11646. $1.	A	AA	A
Moussorgsky: *Khovantchina—Persian Dance.* Columbia Broad. Symph. under Barlow. 2 sides, Columbia 17286. 75c.	C	A	B
Ravel: *La Valse* (3 sides) & **Debussy:** *Petite Suite—Ballet* (1 side). Phil. Symph. Orch. of NY under Barbirolli. Columbia X207. $2.50. Barbirolli's interpretation of this sumptuously ironic waltz almost matches Monteux's on Victor M820.	B	A	A
Schumann: *Symphony No. 4.* Each set 6 sides, $3.50.			
Chicago Symph. Orch. under Stock. Columbia M475.	AA	A	A
London Symph. Orch. under Walter. Victor M837.	AA	AA	A
Stock's robust attack fails to reveal the lyric beauty of this romantic symphony as does Walter's performance. Stock's recording is coarse with little surface noise, Walter's smooth (England 1939) with more surface noise. Over-all preference, Walter.			
Strauss: *Don Juan.* Pittsburgh Symph. Orch. under Reiner. 4 sides, Columbia X190. $2.50. One of Richard Strauss' finest tone poems presented in an uneven performance which does not equal Victor M351.	AA	B	A
Wagner: *Lohengrin—Prelude to Act III & Die Walkure—Ride of the Valkyries.* Pittsburgh Symph. Orch. under Reiner. 2 sides, Columbia 11644. $1.	A	B	B
Symphonic Marches. Anonymous Symph. Orch. 6 sides, Masterpiece Album A27. $1.19. *Radetzky, Coronation, Turkish,* and 3 others. For the most part, mediocre performance and recording.	B	B	B

	Quality of Music	Inter-pre-tation	Fidelity of Recording
CONCERTO			
Berg: *Concerto.* Krassner (violin). 6 sides, Columbia M456. $3.50. Modern work far removed from the standard concertos of Beethoven, Brahms, Mendelssohn. Hear it before purchasing.	B	AA	A
CHAMBER & INSTRUMENTAL			
Chopin: *Etudes, Op. 25.* Kilenyi (piano). 6 sides, Columbia M473. $3.50. Many pianists play these short concert favorites with more emotion but have not recorded them.	A	B	A
Dvorák: *Ballada* & **Zarzycki:** *Mazurka.* Renardy (violin). 2 sides, Victor 18294. $1.	C	AA	A
Franck: *Trio in F Sharp Minor.* Compinsky Trio. 6 sides, Co-Art M2. $3.75. Charming early Franck, principally for the connoisseur.	A	AA	AA
Schumann: *Piano Quintet.* Anonymous String Quartet & Piano. 8 sides, Masterpiece A29. $2.39. A capable performance of Schumann's widely appealing work that would rate AA for fidelity if side 8 of recording tested were as clear as other sides. Only slightly inferior, overall, to Victor M267 and Victor M736 listed at $4.50.	AA	A	A
VOCAL			
Flotow: *Martha—Goodnight* & Traditional: *Drink to Me Only with Thine Eyes.* Mixed Vocal Quartet. 2 sides, Masterpiece 8590. 33c.	A	A	A
Handel: *Xerxes—Largo* & **Messager:** *Chanson Ancienne.* Bonelli (baritone). 2 sides, Columbia 17287. 75c.	B	A	B
Leoncavallo: *Pagliacci—Prologue* & **Verdi:** *Rigoletto—Cortigiani, Vil Razza.* Weede (baritone). 2 sides, Columbia 71261. $1.	B	B	A
Malotte: *The Lord's Prayer* & **Monk:** *Abide with Me.* Traubel (soprano). 2 sides, Victor 2187. 75c.	B	A	AA
Rossini: *La Danza* & **Tosti:** *Marechiare.* Gigli (tenor). 2 sides, Victor 2181. 75c.	A	B	AA
LIGHT, FOLK & MISCELLANEOUS			
The Music of Irving Berlin. Al Goodman & His Orch. 8 sides, Columbia C78. $2.50. *Alexander's Ragtime Band, Say It With Music, All Alone, Always,* and 4 other good tunes orchestrated too lavishly and played too slowly.	AA	B	AA
Crouch: *Kathleen Mavourneen* & **Moore:** *Believe Me if All Those Endearing Young Charms.* Anonymous Tenor. 2 sides, Masterpiece 8592. 33c.	A	A	B
Millay: *In Readings from Her Poems.* 8 sides, Victor M836. $4.50. Edna St. Vincent Millay reads her beautiful poetry with too much grimness, too little color.	AA	B	AA
Strauss: *Chocolate Soldier—My Hero* & **Caryll:** *Pink Lady—Beautiful Lady.* Leibert (organ). 2 sides, Victor 27721. 50c.	AA	A	A
Cowboy Songs. Anonymous Quartet. 8 sides, Masterpiece Album A30. $1.59. *Whoopee Ti Yi O, Old Chisholm Trail, Jessie James, Home on the Range,* etc., presented by a male quartet whose refined voices blot out most of the rugged West.	AA	A	A
Dumbo. 6 sides, Victor P101. $2. Recorded from the sound track of Walt Disney's film, these numbers enchant children who have seen the picture but mean less to adults. Most amusing disc—Victor 27662, *Pink Elephants* & *When I See an Elephant Fly*—available at 50c.	B	AA	B
English Folksongs & Ballads. Haddock (tenor). 8 sides, Musicraft Album 55. $3.50. There's an authentic flavor of old England in these 10 numbers, though the ballads suffer because Haddock's voice doesn't measure up to them. Musicraft 262, most representative disc which offers *'Cos I Were Shy, The Derby Tup, Barbara Allen,* may be had for 75c.	AA	A	AA†
Novachord Solos. Feibel (novachord). 8 sides, Columbia C76. $2.50. *Tea for Two, My Heart Stood Still, Rose Room, One Alone,* etc. Mr. Feibel demonstrates the versatility of the novachord, but his movie-palace interpretations destroy all musical values.	AA	C	A
Smilin' Through. MacDonald (soprano). 6 sides, Victor M847. $3.50. Six numbers sung by Jeanette MacDonald in her new picture: *Smilin' Through, A Little Love, Land of Hope & Glory, Drink to Me Only,* and on the best disc (Victor 18316) *Kerry Dance* and *Ouvre Ton Coeur.* Parted from the glamour of the films, Miss MacDonald's vocal deficiencies become painfully obvious.	AA	B	A
Week-end in Havana. Miranda (soprano). 6 sides, Decca Album 295. $2.75. In her intriguing style, this Brazilian sings four lively numbers from her latest picture and two others. The fidelity of the recording is far superior to the sounds I heard in a first-run motion picture house.	A	AA	AA
When Good Fellows Get Together. Victor Male Chorus under Cote. 8 sides, Victor P98. $2.50. *Kentucky Babe, Heidelberg, Student Prince Drinking Song, John Peel,* etc. Routine performances of choral favorites.	AA	B	B
Paul Whiteman Souvenir Program. Whiteman & His Orch. 10 sides, Victor P100. $3. Nostalgic album of miscellaneous recordings waxed by the great Whiteman Orch. in 1927-28. Four are released for the first time, others pressed from alternate masters previously rejected.	A	A	B

Ratings of Motion Pictures

This department of CONSUMERS' DIGEST endeavors to supply the critical consumer with a digest of opinion from a number of reviews, ranging from the motion picture trade press to Parents' Magazine which rates motion pictures not only on their quality as entertainment, but on their suitability in various aspects for children.

It should be emphasized that the motion picture ratings which follow do not represent the judgment of a single person but are based on an analysis of the reviews appearing in some 22 different periodicals. (For example, "Skylark" was recommended by 2 reviewers, rated intermediate by 9, and not recommended by 5.) The sources of the reviews are:

America, Baltimore Sun, Box Office, The Christian Century, The Exhibitor, Harrison's Reports, Liberty, Mademoiselle, Motion Picture Herald, Motion Picture Reviews (The Women's University Club of Los Angeles), *National Legion of Decency List, Newsweek, The New Yorker, New York Herald Tribune, New York Sun, New York Times, New York World-Telegram, Parents' Magazine, Releases of the D.A.R. Preview Committee, Successful Farming, Time,* and *Variety* (daily).

Periodicals will be added to this list from time to time as future exploration of the subject brings to light other journals offering critical appraisals of motion pictures which appear to be deserving of the intelligent reader's consideration.

The figures preceding the title of the picture indicate the number of critics who have been judged to rate the film A (recommended), B (intermediate), and C (not recommended).

Audience suitability is indicated by "A" for adults, "Y" for young people (14-18), and "C" for children, at the end of each line.

Descriptive abbreviations are as follows:

adv—adventure
biog—biography
car—cartoon
com—comedy
cri—crime and capture of criminals
doc—documentary
dr—drama
fan—fantasy
hist—founded on historical incident
mel—melodrama
mus—musical
mys—mystery
nov—dramatization of a novel
rom—romance
soc—social-problem drama
trav—travelogue
war—dealing with the lives of people in war time
wes—western

A	B	C		
3	9	1	**All That Money Can Buy**	*dr A*
1	4	—	**All Through the Night**	*war-mel A*
—	5	1	**All-American Co-Ed**	*mus-com YC*
—	8	8	**Aloma of the South Seas**	*rom AY*
—	4	6	**Among the Living**	*mys A*
1	11	4	**Appointment for Love**	*com A*
—	5	—	**Babes on Broadway**	*mus-com AYC*
—	1	5	**Bahama Passage**	*dr A*
—	5	—	**Ball of Fire**	*com A*
—	4	1	**Bedtime Story**	*com A*
—	10	4	**Belle Starr**	*mel AYC*
1	14	—	**Birth of the Blues**	*mus-com AY*
—	4	—	**Blue, White, and Perfect**	*mys A*
—	7	9	**Blues in the Night**	*mus-dr A*
—	4	1	**Body Disappears, The**	*com A*
—	5	—	**Borrowed Hero**	*cri AYC*
1	1	6	**Bowery Blitzkrieg**	*cri AY*
—	5	—	**Bugle Sounds, The**	*war-mel AY*
—	6	2	**Burma Convoy**	*mel AY*
—	10	4	**Buy Me That Town**	*com A*
—	4	2	**Cadet Girl**	*mus A*
—	5	2	**Charlie Chan in Rio**	*mys AY*
—	9	1	**Charlie's Aunt**	*com AYC*
—	11	4	**Chocolate Soldier, The**	*mus-com AY*
—	3	1	**Come On, Danger**	*mus-wes AY*
—	2	3	**Confessions of Boston Blackie**	*mys A*
—	9	4	**Confirm or Deny**	*war-mel A*
—	9	—	**Corsican Brothers, The**	*nov AY*
1	1	3	**Cracked Nuts**	*com AY*
—	5	3	**Date with the Falcon, A**	*mys AY*
—	2	2	**Death Valley Outlaw**	*wes AYC*
1	6	1	**Design for Scandal**	*com A*
—	4	1	**Devil Pays Off, The**	*war-mel A*
1	10	4	**Dive Bomber**	*war-mel AYC*
—	2	1	**Double Trouble**	*com AY*
1	5	—	**Down Mexico Way**	*mus-wes AYC*
2	5	4	**Dr. Jekyll and Mr. Hyde**	*mel A*
—	4	1	**Dr. Kildare's Victory**	*dr A*
—	9	5	**Dr. Kildare's Wedding Day**	*dr AY*
—	5	1	**Driftin' Kid, The**	*wes AYC*
—	7	1	**Dude Cowboy**	*wes AY*
9	10	—	**Dumbo**	*car AYC*
—	5	4	**Ellery Queen and the Murder Ring**	*mys AY*
—	3	3	**Ellery Queen and the Perfect Crime**	*mys AYC*
—	—	3	**Escort Girl**	*mel A*
—	10	9	**Feminine Touch, The**	*com A*
—	8	1	**Flying Blind**	*mel AYC*
1	4	3	**Flying Cadets**	*war-dr AYC*
—	3	—	**Forced Landing**	*mel AYC*
2	8	2	**Forgotten Village, The**	*doc A*
—	3	3	**Four Jacks and a Jill**	*mus-com AY*
—	2	2	**Gauchos of Eldorado**	*wes AYC*
—	7	1	**Gay Falcon, The**	*cri A*
—	7	—	**Gentleman from Dixie, The**	*mus-mel A*
—	10	—	**Glamour Boy**	*mus-com AY*
—	4	3	**Go West, Young Lady**	*mus-wes AY*
—	8	5	**Great Guns**	*com AY*
1	13	2	**H. M. Pulham, Esq.**	*nov AY*
—	7	3	**Harmon of Michigan**	*dr AYC*
—	6	1	**Hellzapoppin**	*mus-com A*
3	7	—	**Here Comes Mr. Jordan**	*com AY*
5	13	2	**Hold Back the Dawn**	*mel A*
3	2	1	**Hold That Ghost**	*com AYC*
1	10	10	**Honky Tonk**	*mel A*
—	—	—	**Hot Spot. . .** *See* **"I Wake Up Screaming"**	
11	8	1	**How Green Was My Valley**	*nov A*
1	3	1	**Hurricane Smith**	*mel AY*
1	4	—	**I Killed That Man**	*mys-mel AY*
2	12	—	**I Wake Up Screaming**	*mys-mel A*
1	8	5	**Ice-Capades**	*com AY*

A	B	C		
—	13	5	International Lady	*war-dr AY*
—	9	7	International Squadron	*war-mel AY*
4	18	—	It Started with Eve	*rom AYC*
—	4	1	Jesse James at Bay	*mus-wes AYC*
—	5	—	Johnny Eager	*cri-dr A*
—	9	4	Kathleen	*rom AYC*
—	8	6	Keep 'em Flying	*war-com AY*
—	3	7	Kid from Kansas, The	*mus-mel AY*
1	4	3	King, The	*com A*
—	5	1	Laburnum Grove	*dr AY*
3	13	2	Ladies in Retirement	*cri A*
—	6	6	Lady Be Good	*mus-com AY*
—	4	—	Lady for a Night	*mus-dr A*
—	4	—	Land of the Open Range	*mus-wes AYC*
—	3	10	Law of the Tropics	*rom A*
—	4	2	Let's Go Collegiate	*mus-com AYC*
—	13	1	Life Begins for Andy Hardy	*com AY*
6	6	—	Little Foxes, The	*mel A*
—	2	1	Lone Rider Fights Back	*mus-wes AYC*
1	7	2	Look Who's Laughing	*com AYC*
—	5	2	Louisiana Purchase	*mus-com A*
4	11	6	Lydia	*dr A*
6	9	—	Maltese Falcon	*mys A*
—	5	5	Man at Large	*war-mys A*
1	5	—	Man from Montana	*wes AYC*
—	2	1	Man Who Came to Dinner, The	*com A*
1	9	2	Married Bachelor	*com A*
—	3	4	Marry the Boss's Daughter	*rom AY*
—	2	2	Masked Rider, The	*wes AY*
—	4	2	Melody Lane	*mus-com AYC*
—	7	8	Men in Her Life, The	*dr A*
—	2	3	Mercy Island	*mel A*
—	3	6	Mexican Spitfire's Baby	*com A*
—	4	1	Midnight Angel	*war-mel AYC*
—	4	1	Miss Polly	*com AY*
—	1	6	Mob Town	*cri AY*
—	8	3	Moon Over Her Shoulder	*com A*
—	6	3	Moonlight in Hawaii	*mus-com AY*
—	2	1	Mountain Moonlight	*mus-com AY*
—	3	2	Mr. and Mrs. North	*mys-com AY*
—	5	1	Mr. Bug Goes to Town	*car AYC*
—	6	—	Mr. Celebrity	*com AY*
1	6	3	My Life with Caroline	*com A*
—	7	8	Navy Blues	*mus-com AY*
—	5	7	Never Give a Sucker an Even Break	*com AYC*
3	3	3	New Wine	*biog-rom AYC*
—	8	7	New York Town	*rom AY*
—	4	2	Niagara Falls	*com A*
—	9	2	Night of January 16, The	*mys A*
—	6	4	Nine Lives Are Not Enough	*mys A*
—	5	2	No Hands on the Clock	*mys-nov A*
2	13	5	Nothing But the Truth	*com AY*
—	4	2	Obliging Young Lady	*com AY*
—	2	2	Officer and the Lady, The	*cri A*
12	7	—	One Foot in Heaven	*dr AYC*
—	10	5	Our Wife	*com AY*
—	3	4	Parachute Battalion	*war-mel AYC*
—	3	3	Paris Calling	*war-mel A*
—	—	3	Passage from Hong Kong	*mys AYC*
—	1	4	Perfect Snob, The	*com AY*
—	6	4	Pittsburgh Kid, The	*mel A*
—	8	1	Playmates	*mus-com AYC*
1	4	3	Prime Minister, The	*hist-dr AY*
—	1	4	Public Enemies	*cri A*
—	5	2	Quiet Wedding	*com AY*
—	2	5	Rags to Riches	*cri AYC*
—	1	2	Raiders of the Desert	*mel AY*
—	4	1	Rawhide Ranger	*wes AYC*
—	4	—	Red River Valley	*mus-wes AYC*
—	3	1	Reg'lar Fellers	*com AYC*
2	2	—	Reluctant Dragon, The	*car AYC*
2	5	1	Remember the Day	*rom AYC*
—	6	1	Riders of the Purple Sage	*wes AY*
—	4	1	Riders of the Timberline	*wes AY*
—	5	—	Riding the Wind	*wes AY*
—	6	—	Ringside Maisie	*mel AY*
—	2	3	Riot Squad	*mel A*
—	10	3	Rise and Shine	*mus-com A*
—	4	2	Road Agent	*mus-wes AYC*
—	1	2	Roaring Frontiers	*wes AY*
—	4	—	Royal Mounted Patrol	*dr AY*
—	2	4	Sailors on Leave	*mus-com AYC*
—	5	2	Scattergood Meets Broadway	*com AYC*
—	3	2	Sealed Lips	*mel A*
—	4	2	Secret of the Wastelands	*wes AY*
—	2	1	Secrets of the Lone Wolf	*cri AY*
6	5	—	Sergeant York	*war-biog AYC*
1	11	3	Shadow of the Thin Man	*mys A*
—	1	2	Shanghai Gesture, The	*dr A*
—	2	1	Shepherd of the Hills	*nov AY*
—	3	—	Sierra Sue	*mus-wes AYC*
—	6	2	Sing Another Chorus	*mus-com AYC*
—	2	4	Sing for Your Supper	*com AYC*
2	9	5	Skylark	*com AY*
—	7	1	Small Town Deb	*mel AYC*
1	5	12	Smilin' Through	*mus-rom AYC*
—	2	6	Smiling Ghost, The	*mys AY*
—	1	11	South of Tahiti	*mel A*
—	4	—	Spooks Run Wild	*mys AY*
4	1	1	Stars Look Down, The	*soc AY*
—	4	3	Steel Against the Sky	*mel AYC*
—	3	2	Stick to Your Guns	*wes AY*
—	2	2	Stork Pays Off, The	*com A*
2	6	—	Story of the Vatican	*doc AYC*
1	3	2	Sullivan's Travels	*com-dr A*
1	13	1	Sun Valley Serenade	*rom AY*
2	10	3	Sundown	*mel A*
4	7	2	Suspicion	*dr A*
—	11	7	Swamp Water	*mel-nov A*
—	7	1	Swing It, Soldier	*mus-com AY*
—	12	4	Tanks a Million	*war-com AYC*
5	7	—	Target for Tonight	*war-doc AY*
—	5	2	Tarzan's Secret Treasure	*mel AY*
1	11	2	Texas	*wes A*
—	8	2	They Died with Their Boots On	*hist-mel AYC*
—	2	3	They Meet Again	*cri AYC*
—	1	6	This England	*war-dr A*
1	7	10	This Woman Is Mine	*nov AY*
—	6	4	Three Girls About Town	*com A*
—	2	5	Three Sons O' Guns	*com AYC*
—	2	2	Thundering Hoofs	*mus-wes AYC*
—	6	2	Tillie the Toiler	*com AYC*
—	3	4	Top Sergeant Mulligan	*war-com AY*
—	5	—	Tuxedo Junction	*com AYC*
—	4	2	Twilight on the Trail	*mus-wes AYC*
—	2	2	Two in a Taxi	*cri AY*
—	5	4	Two Latins from Manhattan	*mus-com AY*
1	6	6	Two-Faced Woman	*rom A*
—	6	5	Unexpected Uncle	*com AY*
1	11	1	Unfinished Business	*com AY*
—	6	6	Unholy Partners	*mel A*
—	4	1	Vanishing Virginian, The	*com-dr AYC*
—	3	—	Voice in the Night, The	*war-mel A*
—	1	6	We Go Fast	*com AY*
—	4	6	Weekend for Three	*com A*
1	13	4	Weekend in Havana	*mus-com AY*
1	9	6	When Ladies Meet	*dr A*
1	12	1	Whistling in the Dark	*mel AYC*
—	6	3	Wild Geese Calling	*nov A*
—	3	5	Wolf Man, The	*mys AY*
—	4	4	World Premiere	*com AY*
2	15	1	Yank in the R.A.F., A	*war-rom AY*
1	8	6	You Belong to Me	*rom A*
5	13	—	You'll Never Get Rich	*war-mus-com AY*
—	6	3	You're in the Army Now	*com AYC*
—	5	1	Zis Boom Bah	*mus-com AY*